FARM CHEMICALS

DECEMBER 1961
50 CENTS

The management magazine of the industry

Exclusive this month:

How you can improve your industry's image

Special Reports:

NAC meeting

National Fertilizer Solutions meeting

Fertilizer Industry Round Table meeting

Niagara moves into the "R & D" race

They sell the products of an idea

John Field, Union Carbide Chemicals, (

Facing up to the international challenge

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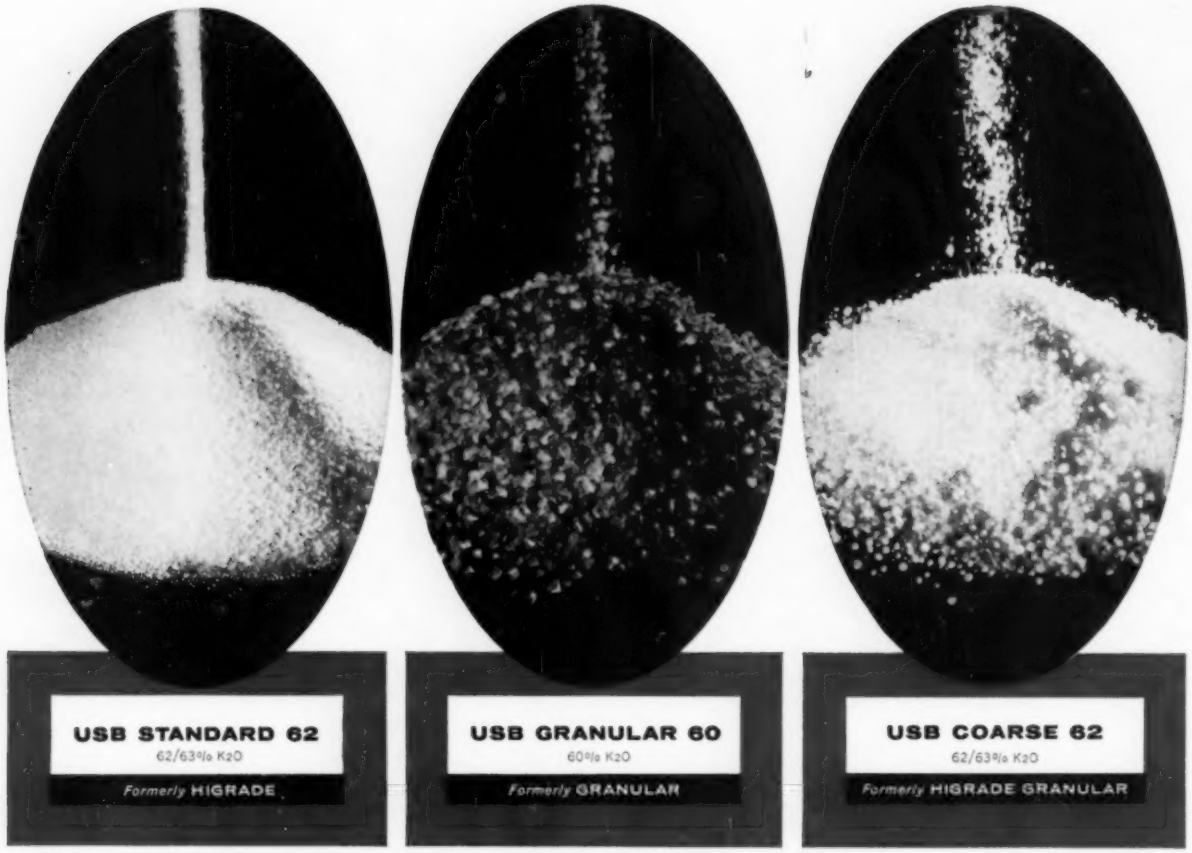

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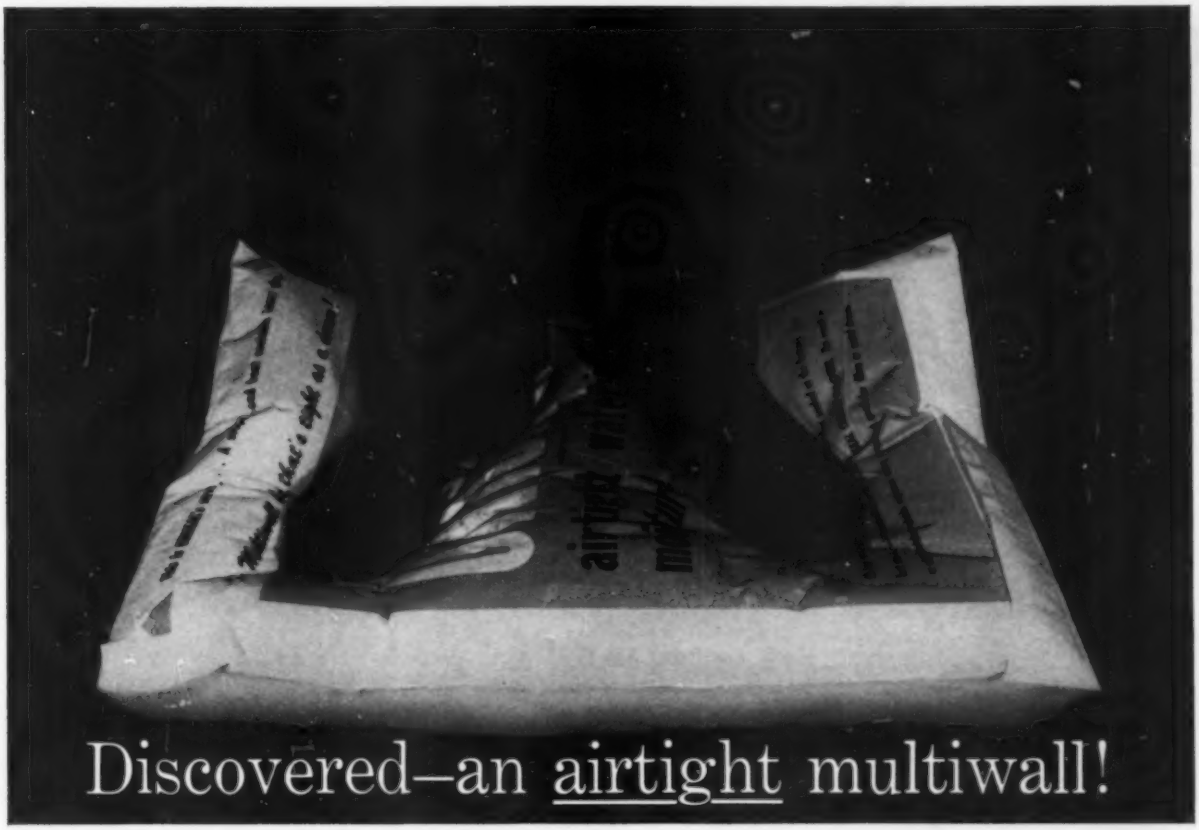
THE COVER STORY

John A. Field's experience in the farm chemicals industry has been both wide and varied. Since joining Union Carbide Chemicals Company in 1936, he has served as chemist, shift foreman, product manager, and vice-president in charge of sales development. In 1957 he was named vice-president—marketing and vice-president in 1960. Field's career has twice taken him to Washington, D. C., first on loan to the Office of Rubber Reserve of Reconstruction Finance Corporation, and later on loan to the Department of Commerce. His education includes a degree from Yale and a fellowship at Oxford University.



Discovered—an airtight multiwall!

Simple demonstration helps solve major packaging problem for Dow Chemical

The multiwall bag you see here contains nothing but air. The man standing on it weighs 200 lbs. Yet no air can escape. *That's because the bag is Union-Camp's amazing new UNISEAL.*

It ended a two-year search by Dow Chemical for a package that would provide a perfect vapor barrier.

Protection problem critical

The search began when Dow first developed an effective new crab grass killer. To successfully market this new product, an unusually tight package—even air-tight—was essential. The ideal package also had to be sturdy, printable, easy to handle and ship. And economical.

One day Dow engineers witnessed the UNISEAL demonstration you see above. If the bag could lock in air, then it must have the perfect vapor barrier. Further testing proved they were right.

Seals safely—and saves, too

The remarkable new UNISEAL bag features four plies. An outer sheet of semi-bleached paper (for top printability). Two middle plies of kraft. And an inner ply of kraft laminated to aluminum foil with polyethylene. A final extrusion coating of polyethylene resin over the foil serves as the heat-sealing medium for the inner seam and bottom.

The bag can easily be filled on *any standard filling equipment.* A special machine heat-seals the inner ply and applies adhesive to the tops of the outer plies. It then folds over the lip and pastes it to the outside of the bag. Finally, the machine centers a strip of gum tape over the edge of the lip to form a positive *air-tight* closure.

UNISEAL'S unique inner ply is made of kraft paper laminated with polyethylene to aluminium foil. Bags can be easily filled on any standard filling equipment.

Secret of sealing. Special machine heat-seals inner ply, folds lip over and pastes to outside of bag. Finally, gum tape is applied (arrow) forming a positive air-tight closure.

Apart from providing a perfect vapor barrier, Union-Camp's UNISEAL bag also turned out to be the least expensive container of any previously tried!

How much could a Union-Camp multiwall idea save you?

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LETTERS

FROM DOWN UNDER

Adelaide, South Australia

For several years we have been investigating equipment and promoting the delivery and usage of superphosphate in bulk.

The trend toward bulk handling of superphosphate is now well established and gaining rapid momentum. Naturally, overseas trends are always of material interest and the article which appeared in the March issue of FARM CHEMICALS under the heading "What's Happening in Bulk Handling and Storage of Fertilizers?" had particular appeal to us.

I wonder if you would be so kind as to circulate to the various organizations mentioned in the article under reference that we would like to enter into an exchange of correspondence relating to bulk handling of fertilizers.

The development of bulk handling and methods employed both in South Australia and other states of the Commonwealth of Australia could prove of extreme interest to personnel in your country who are engaged on the problem.

May we anticipate your co-operation in acquainting interested parties with the desire to interchange ideas and general development relative to bulk handling of superphosphate.

R. V. Donnelly,
Sales Manager
THE ADELAIDE CHEMICAL & FERTILIZER CO., LTD.

We are sending our reader from Down Under the addresses requested. If any of our readers would like to correspond with Mr. Donnelly on this subject, we will be happy to forward the letters. —EDITOR.

WANTS A BOOK

Albany, Ore.

Would you please give me the name of the author and the book on formulating fertilizer mixes. This would be on dry mixing, using nitrogen, phosphorus, and potash.

C. S. Culley
CHEMCO, INC.

Of course, there are many texts available on this subject. However, we would like to refer you to one of the newest— "The Chemistry and Technology of Fertilizers" edited by Vincent Sauchelli, published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y.—EDITOR.

OOPS!

San Marino, Calif.

We noted with interest the item on our *Western Fertilizer Handbook* which appeared in the News of the Industry section of the October issue. Although we had announced that the *Handbook* distribution was expected by mid-September, we didn't quite make it.

However, for all people interested in receiving copies, we hope to have them ready this month.

Earle J. Shaw
CALIFORNIA FERTILIZER ASSOCIATION

FRANCE WANTS A COPY

Marseilles, France

Could you send us a copy of the article entitled "Stored Grain Insect Control" which appeared in the April, 1959 issue.

H. Triaca,
Secretarire General
BUREAU DE LA NUTRITION ANIMALE ET DE L'ELEVAGE

Much as we'd like to help our reader from France, copies of this article are not available.—EDITOR.

FROM MEXICO

Torreon, Coah.

On page 17 of your October, 1961 issue, we found an advertisement for International Minerals and Chemical Corporation's new volume, *Managing for Profit.*

We would like to know how we could acquire a copy of this book. Could you please tell us whom we should contact?

Carlos Martinez P. Gerente
AGROTECNIA, S. de R. L.

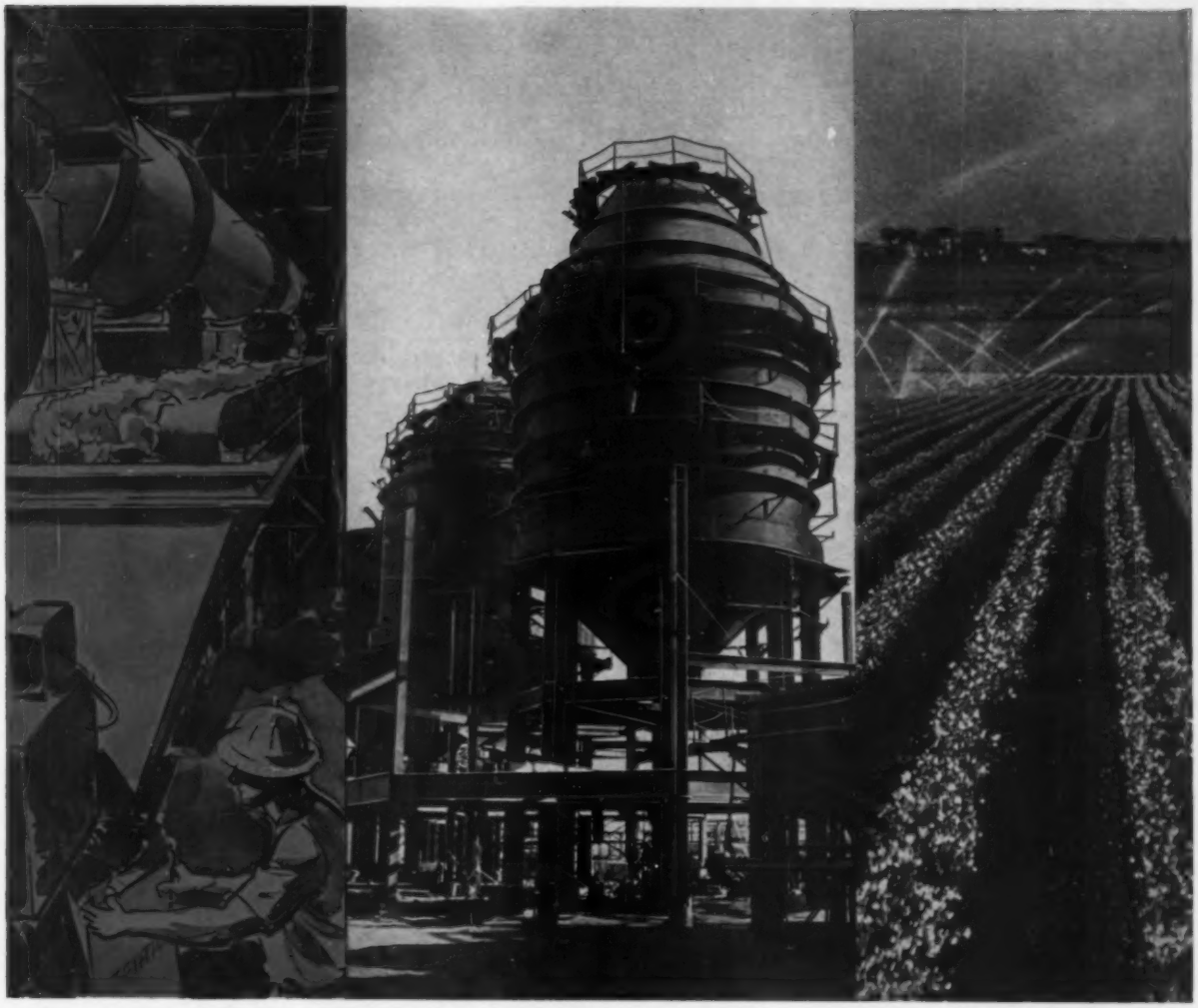
We are forwarding reader Gerente's letter to IMC. —EDITOR.

COMMENT ON FCMS

Baltimore, Md.

FARM CHEMICALS is doing a fine service to the fertilizer industry in sponsoring the Farm Chemicals Marketing Seminar and providing the industry with up-to-date information on marketing.

Vincent Sauchelli



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WASHINGTON VIEWPOINT

By GEORGE PETER

- *Ribicoff appoints committee to advise FDA on new regulations governing chemicals*
- *Will HEW's trimmed budget affect farm chemicals industry?*

Vital questions are being asked in farm chemicals circles over the naming of a new consumer protection group to advise Health, Education, and Welfare Department on public protection against chemicals in foods.

Are new witch hunts for supposedly dangerous farm and food chemicals on the way? Fears on this point are gaining ground already, largely the result of an aura of mystery surrounding the new food watchdogs.

How was the new group selected? Farm and industry groups want to know because the main job of the protectors, whose official title is "Citizens Advisory Committee," will be to make recommendations to Food and Drug Administration for new regulations governing chemicals. How the members were selected may turn out to be important. The official answer--"named by HEW Secretary Ribicoff" casts little light on the subject.

On the good side, the committee has much more scientific representation than a similar Citizens Advisory Committee in 1955. Leading figures in medicine, public health, food packing, a chemical company president, and one representative of a labor organization comprise the 16-member committee. However, reservations again pop up in some trade quarters and farm groups over the balance of interests selected. Experts with a knowledge of the real problems of using chemicals at the farm level seem too few compared with representatives whose specialty is chemical additives used on food after harvest.

Rubber stamp committee. Will it really have some say? The answer to this question, asked about all committees, will have to wait. Much of the spade work will be done for the committee by an outside-government firm of industry-management consultants as was the case with the 1955 study. Whatever the committee comes up with finally will get an overhauling by FDA and HEW if recommendations are to be sent to Congress as proposed legislation. No goal has been set for a final report.

Early as it is, one thing certain to come out of the new study is a recommendation for more FDA staff. Increased use of chemicals on the farm seems likely to be strapped without a regulatory agency large enough to insure responsible handling of ever more complicated but important chemicals, HEW sources tell us.

Also certain to get HEW backing, whether recommended by the committee or not, is a serious effort to find new ways of using important chemicals now kept off the market as too dangerous.

Nothing major in new FDA legislation seems likely to be presented to Congress in the coming session. For one thing, Secretary Ribicoff has let it be known that he is making no important moves beyond trying to enforce present regulations until he hears from the new Citizens Advisory Committee.

Just how fast the committee can come up with a new enforcement program may be revealing. If recommendations are ready for Congress early in 1962, it will mean plans were well under way before the committee began to tackle the problems.

Kennedy Administration budget cutters are also hamstringing HEW efforts to put farm chemicals use and regulation enforcement on more solid ground. FDA will lose $1.2 million. National Institute of Health, where research on cancer and chemical carcinogens is conducted, will lose $60 million. These agencies will be on poor ground calling for new programs when the White House won't spend funds already appropriated by Congress.

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WHAT'S DOING IN THE INDUSTRY

F
C

That round little man, Nikita Khrushchev, was not his jovial self when he addressed the 22nd Congress of the Soviet Communist Party. Faced with a grim drop in agricultural output, Khrushchev said that one of their most urgent tasks was to raise the output of mineral fertilizers, including nitrogen fertilizers, as well as herbicides and other chemicals to control weeds and pests. "It is no exaggeration to say that we must put the production of fertilizers on an equal footing with the mechanism of agriculture, for both are decisive factors in promoting a greater output of agricultural produce," Khrushchev reported.

50 million tons--that's the estimated amount of the phosphate reserves near Soda Springs, Idaho to be developed by International Minerals and Chemical Corporation and Husky Oil Company. The reserves are owned by Husky and constitute one of the largest known reserves of surface mineable phosphate ore in the U. S. Five years has been granted for a development of a final plan for undertaking the joint venture. If Husky should decide not to enter the project, the agreement provides "an equitable basis for the sale of the deposits to IMC."

"Growing like Topsy" is an apt description of the increase in fertilizer ammonia capacity in the Midwest. Right now, there are plants with a combined capacity of about 325,000 tons per year bordering on the Illinois-Indiana-Iowa corn belt. Other plants within shipping distance have a combined capacity of more than 600,000 tons per year. In addition, four new plants are expected on stream by '63. They are: California Chemical Co., Ft. Madison, Iowa, 105,000 tons per year; Monsanto Chemical Co., Muscatine, Iowa, 70,000 tons per year; Hawkeye Chemical, Clinton, Iowa, 100,000 tons per year; and a co-operative venture in southern Illinois or Indiana, 115,000 tons per year.

What's behind Alco Oil and Chemical Corporation's acquisition of Miller Chemical and Fertilizer Corporation? Alco wants a market outlet for Soil-Set, an elastomeric spray mulch said to block erosion of soil by wind and rain without retarding germination of grass or other seeds. Potential markets for Soil-Set include highway and airport landscaping, golf-course maintenance, farming, and home gardening. Miller's nationwide marketing facilities and its closeness to farmers and other bulk users makes it ideal for Alco's purpose. Soil-Set will be teamed with Miller's products. In that way, Alco hopes to line up distributors to sell Soil-Set to the consumer market.

Tuloma Gas Products Co., of Tulsa, is planning a major expansion program. It will include construction of an additional anhydrous ammonia plant, building of refrigerated barges, installation of two new storage terminals, and the enlargement of a third storage facility. Tuloma plans to expand its marketing outlets for nitrogen fertilizers nationally.

Olin Mathieson unveiled two new chemicals at the formal opening of its new agricultural chemicals research laboratory. Apholate causes sterility in houseflies which eat it or walk over a treated surface. The flies live but their eggs do not hatch. Target date for commercial introduction of Apholate has been tentatively set for 1964. Its market has been estimated at more than $10 million a year. Olin also announced a new pineapple growth regulator, Omaflora, which speeds up the flowering of the pineapple plant and thereby provides a uniform harvest in individual fields. It is being developed in a co-operative program with Hawaiian Pineapple Research Institute.

International Co-operation Association is in the doghouse with American fertilizer producers. ICA recently opened a $7 million foreign aid purchase of fertilizers to foreign suppliers. This was "highly injurious to the domestic fertilizer industry," according to a group of protesting producers. Included in the group were Smith-Douglass Co., Grace Chemical Co., Ashcraft-Wilkinson Co., and Hydrocarbon Products. ICA also set a cut-off price of $2.69 per unit of nitrogen. This low cut-off price was "unrealistic in terms of American costs," the group claimed. They also protested ICA's failure to announce the cut-off price prior to the invitation to bids.

Coming Up!

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- **AMMO-NITE®** Ammonium Nitrate (prilled)
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- **ANHYDROUS AMMONIA**

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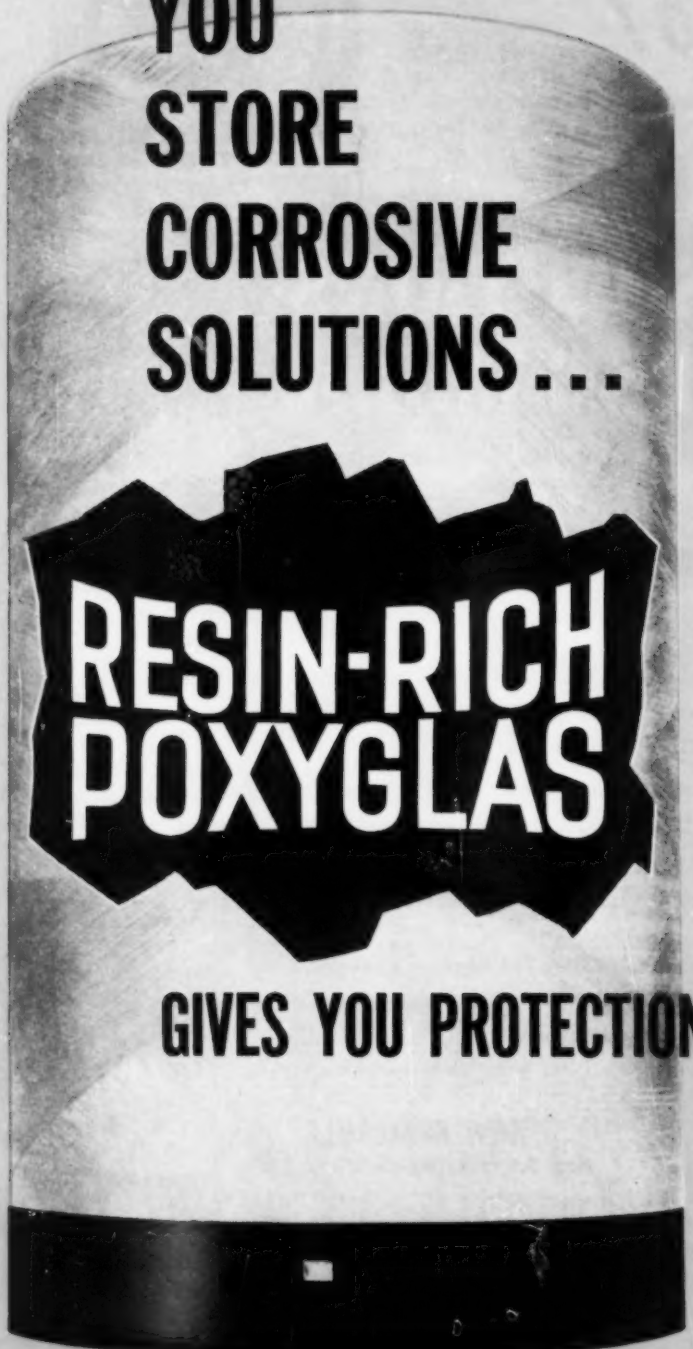

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How We Can Capture Our Share of the International Market

American firms are being outclassed in pesticide marketing overseas. In this talk before the third annual Farm Chemicals Marketing Seminar, John Field tells why.

By JOHN FIELD*

THERE are fundamental differences between marketing agricultural chemicals domestically and abroad. To understand these differences, we must examine the different natures of change in the U.S. and in foreign countries.

The basic change affecting the American farmer has been a continuing and accelerating agricultural revolution in which machines and technology have been the prime causes of change. Although this same revolution is having an impact abroad, its influence on world-wide agricultural practices during the next decade will not be as profound as the social revolution now underway in Asia, Africa, and South America.

This social revolution, in which nationalism plays a most important part, has already made its impact on world agricultural marketing methods. In the next decade, certain factors of this revolution will be of utmost importance in determining the course domestic manufacturers must pursue in their export sales of pesticides.

It takes a lot of "courage" to sell overseas.

As the feeling of nationalism grows

Strange business customs often pose problems.

in country after country and traditional bonds of political and economic natures are broken, the new countries move rapidly to socialistic forms of government. Once a socialistic or quasi-socialistic economy is developed, the next step is the abolition of private business.

The examples are already numerous —Egypt, Ghana, Indonesia, and Cuba. In these countries, and many others, the government has taken over the functions which were once performed by private business. As a result, governments have become the major customers to which suppliers can look for business. All of these countries are becoming increasingly important as major markets for pesticides and a new technique of selling must be developed.

As the types of government change, so must the methods of marketing. In no field of marketing is this more apparent than in agricultural chemical marketing. We spoke briefly of the frequent abolition of private enterprise. Firms which were once major importers and distributors of agricultural chemicals are expropriated and their functions performed by governmental agencies. Historic economic ties and business associations are liquidated, often leaving bad memories of the old associations in the minds of those making up the new governments. Any firm which wishes to be successful under these conditions must devise new methods of marketing and thoroughly understand and appreciate the new situation.

Ghana can be taken as an example. Cocoa is the major crop in Ghana and represents about 60% of their dollar income. Before their independence

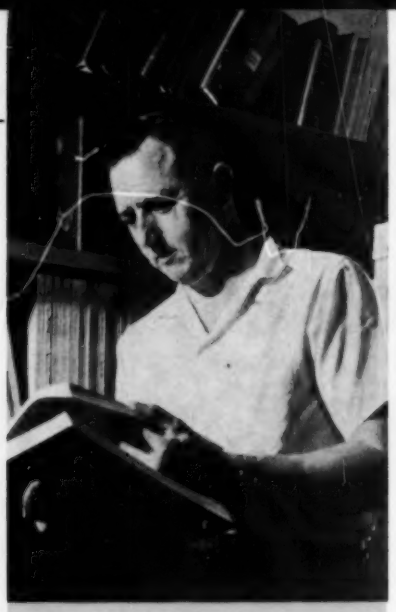
(Continued on page 38)

Keeping up with foreign regulations is a job!

*Vice-president, Union Carbide Chemicals Co.

MERCHANDISING AIDS

they sell the products of an IDEA



Dr. Byron Williamson in the company library which contains a wealth of reference material. Small staff meetings are held here.

Entomologists Richard N. Lyness (right) and Michael Miesch at work in the portion of the laboratory where flies are grown for research projects.

By A. B. KENNERLY

THE YOUTHFUL and vigorous firm of Agricultural Specialties uses three ingredients in its quest for success: imagination, plus a problem solving technique, plus vigilant attention to details. Results: its business doubles every three years.

It began back in 1949 when Dr. Byron Williamson and his brother Dr. Thurmond A. Williamson left the research laboratories of DuPont. They had as their resources a farm background, their doctorates in chemistry, several years experience in research, enough money that could be tied together with one short shoestring, and an idea. These were the resources with which the brothers have built Agricultural Specialties in Dallas, Texas, using a merchandising plan that has gained national distribution for their farm chemicals in the 12 years.

"The farm chemical industry is big," Dr. Byron Williamson reminds. "We realize the vast resources the large companies have at hand. But we've found a place for ourselves in the industry by seeking out needs that are not being met. This has placed us in a highly specialized position in the field."

RESEARCH PROJECTS

The idea which the brothers brought with them to Dallas was that a small company could afford to operate its own testing laboratory if it confined itself to a few specialties. Their research is directed at a few insects that cause economic loss or become a nuisance to man and animals. They do no research on insects that prey on crops. Look about their laboratory and you'll find colonies of house flies, ticks, cockroaches and horn flies.

"Biggest problem right now is how rapidly insects can develop resistance to insecticides," Dr. Byron points out. "We're constantly working on new formulations that will be more powerful—that will prove lethal to even the most resistant flies, mosquitoes and roaches, and yet be safe for use about the farm and home. We produce about 10,000 flies a day for research purposes."

Because safety is of such importance, their laboratories also contain a colony of rats for testing safety factors.

Although their new 2-year old plant building lies within the city limits of Dallas, they're far enough out that they have a 4-acre pasture for cattle. "We do our work on horn flies here," Dr. Byron Williamson reveals.

At one end of the pasture are the dog kennels. Dogs are kept here for research on the Brown dog tick fleas and for other research studies.

"SMALL" EXPERTS

"We do part of our research to screen insecticides—to learn what combinations, formulations and strengths will do the best job in minor areas, not the big areas," Dr. Byron explains. "We leave the largest areas to the large organizations, although we seek out as markets the big volume users in the minor areas. We try to be experts in a small field."

One of the first products on which the brothers worked when they started their business was lindane for poultry mites. "We were raised on a poultry farm and we know the farmers' problems. We knew chemistry and we were confident we could put the two together to operate a successful business. Step by step we have worked into other fields."

Dr. Byron Williamson does much of his talking with a piece of chalk. There's a chalk board on an easel in his office where he exercises the power of visual aids to put across information.

FOUR BRANDS

"We have four corporations including the parent organization of Agricultural Specialties," he explained as he wrote the name at the top of the chalk board. Drawing three rectangle boxes below, he wrote in the names of the three other corporations and explained their functions:

First is the parent corporation, Agricultural Specialties which merchandises its products under the Star-Bar label. These include insecticides for beef and dairy cattle, hogs, sheep, goats and horses, dog and cats, stored grain, houseflies and poultry.

Next is Malrin Products, Inc. This division distributes insecticides to control resistant insects. Their main customers are found among municipalities that use the products as fogs or mists to control mosquitoes and other flying insects; industrial and government units, and farms and households that use insecticides in large volume.

The third corporation markets insecticides under the Vet-Kem brand. This line of insecticides provides the practicing veterinarian with up-to-date and reliable information, recommendations and materials by specialists in the field of veterinary entomology. These prod-

Lyness and Miesch are shown in another part of the lab, where chemical research is conducted, looking for improvements in the company's products.

Distribution centers over the nation from which their chemicals are shipped to customers are pinpointed by Dr. Williamson.

ucts are sold only to veterinarians who have the necessary skill and knowledge to use them.

The latest corporation sprang from a hobby of Dr. Thurmond Williamson who has become a national authority on rose culture. His long existing love for gardening coupled with a wealth of information on insecticides and close association with nurserymen triggered the organization of Nurs-Ree Special, Inc. This corporation serves the nurserymen of the nation, and provides a good example showing how the Williamson brothers search out special needs that someone should meet.

"We observed the trend toward mass distribution in the sale of plants and shrubs," Dr. Byron explained. "Large volume chain stores are moving into this field. Even automobile service stations in some states are now handling nursery stock. But we believe the nurseryman still has the most important place to fill. Who else but the nurseryman who has the know-how can answer questions for the customer when he gets in trouble with his plants? We believe the nurseryman has a big future through merchandising a higher quality product and through his ability to provide helpful and needed information to his customers."

And that's the purpose of the new corporation. It provides nurserymen with a custom line of garden insecticides to sell to their customers. This brand is sold exclusively to nurserymen.

This corporate structure provides a large array of products under four separate brands which ordinarily would require a half a train-load of salesmen calling on retail stores, industries and municipal units, veterinarians and nurserymen as well as large scale farmers and ranchmen.

But Agricultural Specialties and its divisions have only four men on the road to build and maintain distribution from coast to coast. And one of these is Dr. Byron Williamson himself. They work closely with, and only through distributors. They select good distributors, the best and largest they can obtain.

They have recently been working the State of Iowa. Here, Walter "Bud" Houston, distribution manager, made surveys to learn the kinds of insecticides most used, and to single out the biggest users and the foremost distributors. He flew back to Dallas with the information and after office conferences, a detailed marketing program was planned.

TRAINING PROGRAM

"We work closely with our distributors visiting each one of them once or twice a year," Dr. Byron explained. "We help them by holding sales meetings to train their salesmen. We provide them with a vast amount of literature for distribution to their retail outlets, to veterinarians, nurserymen, municipal units and others on whom they call."

Their efficient distribution system stems from careful planning and close attention to details, as do many other successful operations in this small but growing concern. Dallas has excellent air connections with non-stop flights to most every part of the United States.

"We're 2 hours from Chicago, 3 hours from New York, 3 hours from Florida and 2½ hours from Los Angeles," Dr. Byron cited. "And our plant is only 20 minutes from Love Field, 30 minutes from Amon Carter Field near Fort Worth. We travel by air altogether, then rent cars from the airport to see our distributors and customers."

Pat Hitt, on a recent trip through eastern Tennessee flew to Atlanta, rented a car, drove over the territory and left it at Nashville to fly back to Dallas.

Advertising in the past has been mainly in trade publications, but they're attacking that problem with their usual problem-solving technique. Their method is to take an objective look at the problem, gathering every bit of evidence they can find, both favorable and unfavorable. With the evidence at hand, they're able to come up with the best solution they can work out in the light of the information.

The Williamson brothers have employed an advertising agency to test out many different ways by which they can reach their ultimate customers through their distributors. "It's going to cost us some money," Dr. Byron concedes, "but we hope to come out with the most efficient advertising schedules we can develop together with the best media for getting the message across."

Byron and Thurmond Williamson are taking the long range look at the insecticide business. But this long range look is focussed on individual problems. "In every product there is some point of weakness," Byron stresses to the entomologists, lab technicians and his salesmen. "Let's search out those weaknesses and discover a way to strengthen the product. That's our contribution to the agriculture of America and to mankind in his search for ways to combat the increasing hordes of insects." ☆

Glenn Kirscher points out the growth sugar beets had made by July 26 on his high yield plot. He applied 600 pounds of 20-20-0 per acre.

Ortho Takes Aim at OPTIMUM YIELD

By MALCOLM H. McVICKAR*

IT'S odd the way some projects get started. Take Ortho's High Yield Program, for example. It all began in a little restaurant in Hamilton, in the Bitter Root Valley of Montana. A group of Ortho men—Robert Warnock, Harold Maus, and Malcolm McVickar—were talking with William Thomas, the local county agent, and John Parker, a local Ortho dealer. Somebody raised a question about yield—what *was* the highest yield a farmer could get from an acre of wheat, for example.

Someone pointed out the only way to find out true yield potential was to try for the optimum yield. And that was the beginning of California Chemical Company's High Yield Program.

The Bitter Root area was a good place to begin. The average irrigated farm in the area is small—only about 120 acres—so about the only way a farmer can increase his profits materially is to produce more per acre at a lower unit cost of production.

The next step was to find growers willing to participate in a high yield program. John Parker and Harold Maus were assigned to contact some of the leading farmers and see if they would try out, on a limited acreage, a top-notch crop production program.

Bill Thomas, the county agent, said that although he couldn't serve as a leader for a company-sponsored project, he would be willing to check out soil samples in his county laboratory and counsel with Ortho's district agronomist, Bob Warnock, on recommendations.

Within a few days, Maus and Parker had lined up 23 growers. Soil samples were taken. When the results were completed, Thomas and Warnock came up with recommendations on fertilization, planting rates, etc. They shot for high production.

The growers bought the fertilizer and the program was officially launched. Average size of the high yield plots was 5 acres. Crops to be tested included wheat, sugar beets, potatoes, as well as irrigated pastures.

The final chapter, of course, will be written when all yield figures are in and the profits compared with the cost of the treatments. But the progress story sounds most promising.

Dean Hyatt's yield increased 6/10 ton per acre on the first cutting of his alfalfa field. Last year, he had applied phosphate only. This year, he applied nitrogen and phosphate. A combination of 16-48-0 and 20-20-0 was applied at the rate of 96 pounds N and 171 pounds P_2O_5.

On the Curtis Martin farm, an application of 450 pounds of 20-20-0 on a mixed permanent meadow yielded 5 tons of quality hay at one cutting.

(Continued on page 44)

**National Manager — Agronomy, California Chemical Company, Ortho Division.*

Pete Leonardi applied 1000 pounds of 14-14-14 per acre to get these heavy heads of wheat being inspected by (l. to r.) McVickar; Ortho fieldman Harold Maus; soil conservationist Clem Rose.

Farmers in Bitter Root area inspect high yield plot. Dean Hyatt applied combination nitrogen-phosphate fertilizer to this field of alfalfa, stepped up first cutting yield 6/10 ton per acre.

SULPHUR

View of our new large main storage and shipping terminal at Beaumont, Texas. Solid sulphur vats (top center)—part of our large inventory—with molten sulphur storage tanks to their right. Freighter (center) taking on solid sulphur; tank barges (right) loading molten sulphur. Empty freighter (lower center) at holding dock.

2,500,000 tons-PLUS

...a healthy reassuring TGS inventory!

At the close of 1960 stocks of Frasch-mined Sulphur in the United States...and it is this Sulphur that accounts for most of the world's inventory...totaled about 3,650,000 long tons.

What is the TGS contribution to this inventory? Better than two thirds. Combining inventories at its four Frasch producing properties in Texas with stocks at its main and regional terminals, TGS has a running inventory of about 2,500,000 tons or about 70% of U. S. total inventory. In addition, there is a considerable inventory at its gas recovery plant in Okotoks, Alberta.

2,500,000 long tons **plus** of TGS Sulphur...indeed, a healthy reassuring inventory!

TEXAS GULF SULPHUR COMPANY
75 East 45th Street, New York 17, N. Y.
811 Rusk Avenue, Houston 2, Texas
Sulphur Producing Units: Newgulf, Texas • Moss Bluff, Texas
Fannett, Texas • Spindletop, Texas
Worland, Wyoming • Okotoks, Alberta, Canada

Niagara Moves Into the Research and Development Race

With the opening of its new research center, Niagara Chemical has moved full force into the race to develop new pesticides

NIAGARA CHEMICAL DIVISION of FMC Corporation is not letting any grass grow under its feet in the agricultural pesticide market. Their secret for profits is a line of sprays, dusts, and herbicides to make possible higher and higher crop yields at lower and lower costs. They know the stark fact, too, that what is on the market today can be quickly outdated.

Niagara has the manufacturing plants: 15 in the U.S., two in Canada, two in Mexico. A successful decentralization program has solved inventory control problems, raised employee morale, and cut costs.

In marketing pesticides, Niagara has been closer to the farmer than many other manufacturers and through a top-notch organization of fieldmen has correctly diagnosed and solved farmers' problems in purchasing and using pesticides.

But, Niagara realizes that this is not enough to keep up. What is needed is a flow of chemical materials which will do a better job for farmers in an increasingly chemical age. When Niagara opened its new research facilities at Middleport, N.Y., last month, it signified a full-time commitment to Research and Development.

The new research unit is designed so that ultimately chemicals can be synthesized and tested in close proximity. New compounds that show promise can be field tested on the research farm. This close liason between synthesis and testing, it is hoped, will lead to more accurate and speedier results. Dr. Robert L. Gates, director of R and D, expects that an average of 2000 compounds will be screened per year.

Niagara started as a sprayer pump manufacturer that began production of uniform quality pesticides in order to insure results from the sprayer. Middleport is still a sleepy, upstate New York town on the Erie barge canal and little changed—except for the expansion at Niagara—in the last half century. Middleport, then as now, is hard by the wealthy fruit belt along Lake Ontario. It was only natural that Niagara should have started with fruit dusts—a field in which it is still a leader.

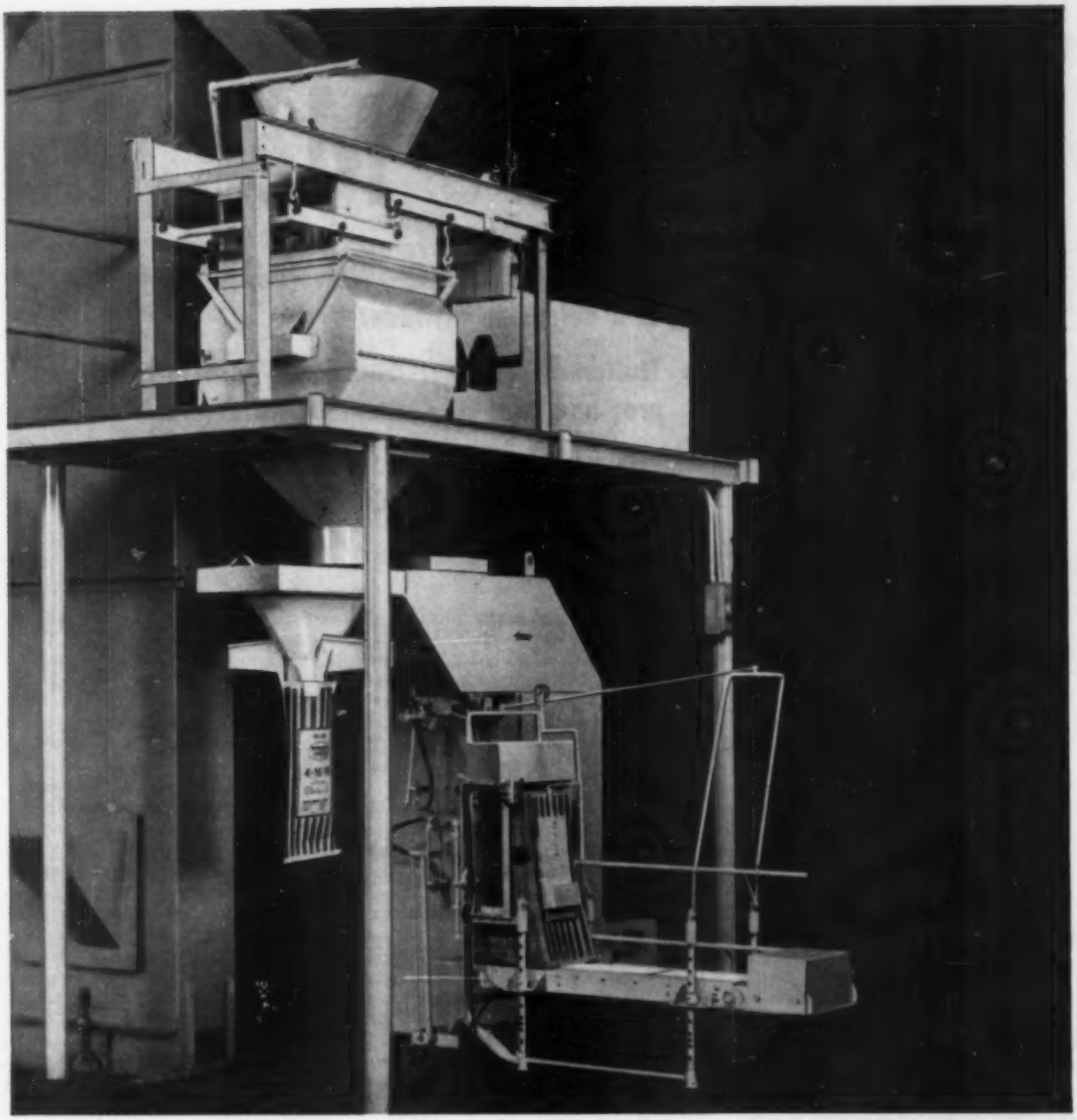
A graduate in horticulture from Michigan State University, Ernest Hart, led the company into a nationwide distribution program. In 1943, Niagara became a division of FMC, and Ernie Hart later became president of FMC. Niagara has continued to supply executive talent to the parent organization. Former division manager, Jackson Vernon, is presently vice-president of FMC, with headquarters in New York City.

Niagara's marketing activities are divided between three main divisions. The Agricultural Department, with Ed Hertl as manager, handles the sale of Niagara brand formulated products to dealers and direct to growers through Niagara's organization of several hundred fieldmen. Up to a third of the Ag Department's sales are sold direct.

The Technical Chemicals Department, under Lloyd Coster, handles the sales of technical chemicals to formulators and other producers in the field. The Fairfield Chemicals Department produces Pyrenone® spray concentrates, rights for which were recently purchased from U.S. Industrial Chemicals. In late 1960, Niagara purchased certain assets of Standard Agricultural Chemi-

(Continued on page 43)

This test plot at Niagara's research farm shows the effectiveness of Solan, Niagara's new herbicide for tomatoes. Rows on left were treated with Solan and are free of weeds; rows on right are completely overgrown with ragweed, other weed pests. Solan is the first post emergent weed control safe to use on tomatoes.



Automatic bag placing and filling . . . shown here is the Raymond Bag Packer (top half of photo) and the Raymond Bag Placer (bottom)

INDUSTRIALLY PROVEN... *the Raymond Combination*

ROTOMATIC BAG PACKER—BAG PLACER

Here's a proven step towards automating your packing line. The Raymond combination Bag Placer and Bag Packer will automatically hang bags on packing spout and fill them at the rate of 25 bags per minute . . . proven in full production line operation. The development of the Raymond Bag Placer, which is designed to operate with all open mouth packing equipment, is another step forward towards completely automatic bag placing, filling and closing operations. For details on the Raymond Packer Placer combination or separate units, contact your nearest Raymond Representative or write

Raymond
BAG CORPORATION
Middletown, Ohio
A Division of Albemarle Paper Mfg. Co.

ATLANTA • BALTIMORE • CHICAGO • KANSAS CITY • LOUISVILLE • NEW YORK

It's Meeting

- **Ferguson tells NAC: "We've developed too much of a defensive attitude."**
- **National Fertilizer Solutions Association hears pros and cons on suspension fertilizers.**
- **"Be proud of your industry," Keating tells Western Agricultural Chemicals Association.**

COMPLACENCY ?
NO, NEVER ! — NAC

"WE HAVE DEVELOPED too much of a defensive attitude. The program you will hear today will show that many opportunities are ahead of us."

Those were the words of Dr. George R. Ferguson—president of Geigy Agricultural Chemicals, Division of Geigy Chemical Company, and NAC Board Chairman—as he addressed the 28th annual meeting of the NAC Association at the Homestead, Hot Springs, Virginia, on October 29.

He was right. The three-day meeting was a challenge from start to finish, with the theme being "Progress or Complacency." Ferguson's talk stressed recognizing the changes going on in farming. He said:

"The trend is not in the direction of the corporation farm—but in the direction of productive family farms—fully mechanized, highly productive, managed by owner-operators with university degrees fully trained in agricultural technology."

He said that this trend defines our marketing problem, adding:

"Products must be classified as to those which are 'raw materials' in the production of a crop and those which are incidental or convenience items. The communication of technological know-how from manufacturer to distributor to dealer to farmer is as weak as the number of times the information must be repeated.

"All are familiar with the children's game of whispering a word, phrase or sentence into the ear of the next person in a circle, and then listening to the result at the end of the cycle, which generally is not at all like the starting phrase."

Ferguson then got into the problem of misuse of pesticidal chemicals. He said that a recent survey indicated that farmers in one area had only a chance or random *chemical* knowledge of pesticides.

"In my own contact with farmers," he said, "it has been apparent that our products are related to some end use and surprise is frequently indicated when they find that the same product can be used for something else.

"DDT is considered by the corn farmer as something to get rid of corn borers—something that solves a problem in the production of corn—it is the end result that makes the impact and not the specific content of the product or its chemical properties. Until we can impart some knowledge and understanding of these pesticidal chemicals so that

"Good place to get together!" seems to be what W. B. Copeland, (left) Olin Mathieson Chemical Corp., was telling W. B. Gillette, Texas Gulf Sulphur, and Derek Richardson, Olin Mathieson.

Enjoying coffee break were Carlos Kampmeier, Rohm & Haas; W. H. Meyer, Chipman Chemical Co.; Howard J. Grady, Ortho Division, California Chemical Co., and Paul Mayfield, Hercules Powder Co.

Time!

- **Importance of fertilizer dealer is explored at Southeastern Fertilizer Conference.**
- **Association of American Fertilizer Control Officials face problem of labeling.**
- **Gaither T. Newman elected chairman of Safety Council's Fertilizer Section**

Dr. H. L. Haller, (right) Agricultural Research Service, USDA, and recipient of the Spencer Chemical Company award, chats with Dr. Roger Roth, industry consultant.

Extension Entomologist's problems are tied to the pesticide industry, Dr. R. O. Rowell, (right) Virginia Polytechnic Institute's "bug man," told the NAC members shortly after his picture was snapped with J. D. Maddrey, (left) Planters Chemical Corporation, Norfolk, Va., and George Simches, also of Planters.

Taking advantage of a day away from the office are Tom Smith, Monsanto Chemical Co., and Fred Hatch, industry consultant.

the farmer can get the 'feel' of them, we will continue to have problems of misuse. This is a tremendous challenge to our industry," he added.

COUNTY AGENT LAUDED

"We are extremely fortunate in this country to have a highly organized Extension system working from federal, state and county levels to help bridge this communications gap.

"The County Agent is the key in this system as he works directly with the farmer. Our industry has not done a satisfactory job, however, in keeping the County Agent informed on our products. His problems are the farmer's problems and his sources of information are basically the same. The essential difference is that the County Agent has organized the flow of information from these sources so that available knowledge may be brought to bear on his local problems. In my opinion, our industry is not doing its share in this segment of farm communications."

Concerning the NAC Association's program, Ferguson said:

"Our progress or our complacency will be measured by the efforts we make. I can assure you that every member is getting more than a dollar of benefit in return from every dues dollar spent on the activities of this Association."

He added that some members spend more on expense in attending the annual meeting than on dues.

"Your Board of Directors has made every effort to streamline and reorganize our staff, our by-laws, and our dues structure to make our Association more effective. We need your support—moral, physical and financial," he concluded.

Following a report of the dues committee of the Board of Directors, members heard an interesting talk about the public relations work being carried on by the extension entomologist in behalf of the industry.

Dr. J. O. Rowell, extension entomologist at Virginia Polytechnic Institute, explained his job. As with the pesticide industry, Rowell said that extension entomologists "by the very nature of their specialty, find themselves frequently on the defensive. In other words, because we sign and authenticate pest control recommendations, we are in the public eye, so to speak."

He said that they often are blamed for offenses against the public and against our wildlife resources.

"Regardless of the inaccuracies of many of these accusations, the extension entomologist often comes face to face with public disfavor. Our most pressing problem, then, becomes one of converting the public to our way of thinking before we can expect to gain acceptance of our programs and recommendations," he went on.

He explained how the Entomological Society of America established a committee several years ago to study the area of public relations in the field of entomology.

From his talk, it was evident that the entomology profession and the pesticide industry had reached an advanced stage of "togetherness."

AN INTERESTING PROJECT

Government-industry cooperation to formulate a program that would more closely integrate research efforts was discussed by Donald A. Spencer, biologist, Bureau of Sport Fisheries and Wildlife, Wildlife Research Center, Denver, Colo.

This "shoestring project" which pools the capabilities of the chemical manufacturer and the government biologist has succeeded beyond all expectations, Spencer reported.

"This program is especially desirable

It's Meeting Time!

in those fields of land management not presently covered by industry's $25 million program of agricultural chemical research and development," he explained.

He said that many a forest problem, such as the slow multi-season growth of trees, present unique requirements not admissable for rapidly maturing food crops. Off-flavor (repellent) and long-residual chemicals in plants are examples of compounds avoided in agricultural chemical research.

"Secondly, the problem species associated with fish and wildlife management differ so radically from those in agriculture as to require chemicals initially screened and developed for them alone," he went on.

He also explained that the use of insecticides, fungicides and herbicides under forest and range conditions involves certain adverse effects on fish and wildlife that differ from those encountered under agricultural practices.

He said that the research project relies for its source materials on information developed and held confidential by individual basic manufacturers and formulators. Industry representatives outlined the conditions under which they could make available samples of compounds and still not sacrifice their patent and marketing position.

The pilot chemical screening tests include only a few species of native mammals at present, but it looks like an exciting development to watch as industry and government team up to "further guide mankind in the wise use of chemical tools."

"THE COLLECTIVE WOMAN"

Miss Willie Mae Rogers, director of Good Housekeeping Institute, told the industry.

"Your problem is to reach the people who need the information."

She said that two-thirds of America's purchasing power is controlled by women. It's important that the industry try to understand what is back of female reasoning and profit by it, she added.

Miss Rogers said that the "collective woman" expects signs, ads and labels to "mean what they say." She suggested "better, more concise, simple words" and predicted that "this project is the one most likely to solve your problem."

What is the "problem"? Well, she recognized it as the *minority groups* which spread fear. While it is true, she added, that the average person doesn't care, "Votes should be weighed —not counted." She felt that minority groups are gaining converts.

With this NAC Association annual meeting report beginning with Ferguson's call for getting off the defensive, FARM CHEMICALS wishes to close the report on the same note. Miss Rogers had some excellent suggestions along this line. She called for institutional advertising aimed at the consumer to show how ag chemicals are necessary. She suggested the "before and after" approach. She urged the industry to make its story *personal*—and direct it to *women*. She advocated playing up the role of women in agriculture in institutional advertising.

"And do something about those labels," she reiterated.

FIVE NEW DIRECTORS

Five new members of the Board of Directors of the National Agricultural Chemicals Association were elected. All to serve for a three-year term, are Howard J. Grady, president of the Ortho Division of California Chemical Company, Richmond, California; R. C. Harnden, president of Chapman Chemical Company, Memphis, Tennessee; Daniel J. Keating, vice-president and general manager, Agricultural Chemicals Division, Stauffer Chemical Company, New York, New York; C. D. Siverd, general manager of the Agricultural Division of American Cyanamid Company, Princeton, New Jersey; and T. K. Smith, Jr. vice-president, Monsanto Chemical Company, general manager of Agricultural Chemicals Division, St. Louis, Missouri.

Officers of the Association to serve for one year are Chairman of the Board of Directors Dr. George R. Ferguson, President of Geigy Agricultural Chemicals, Division of Geigy Chemical Corporation, Yonkers, New York; Vice-Chairman of the Board Herbert F. Tomasek, president of Chemagro Corporation, Kansas City, Missouri. Also reelected for another year were L. S. Hitchner, president; Jack Dreessen, secretary; and Miss Lee H. Grobe, treasurer.

"BE PROUD" WACA TOLD

THERE is no need for farm chemical men to feel so down in the mouth about their chosen profession, nor to resign themselves to the fate of agriculture's whipping boy. Without them, their research, and their products, the food and fiber industries and the consumers who depend upon them would be in a bad way.

These encouraging assurances were the theme of the annual convention of Western Agricultural Chemicals Association, held recently at Berkeley, Calif.

But L. B. McNeilly, Santa Clara County (Calif.) Farm Advisor, told delegates the chemical industry has not been bold enough in telling its side of the "contamination" story to the consumer. He urged the industry to establish a national public relations program directed toward the consumer to keep her (or him) informed that the nation's food supply is far from being in jeopardy.

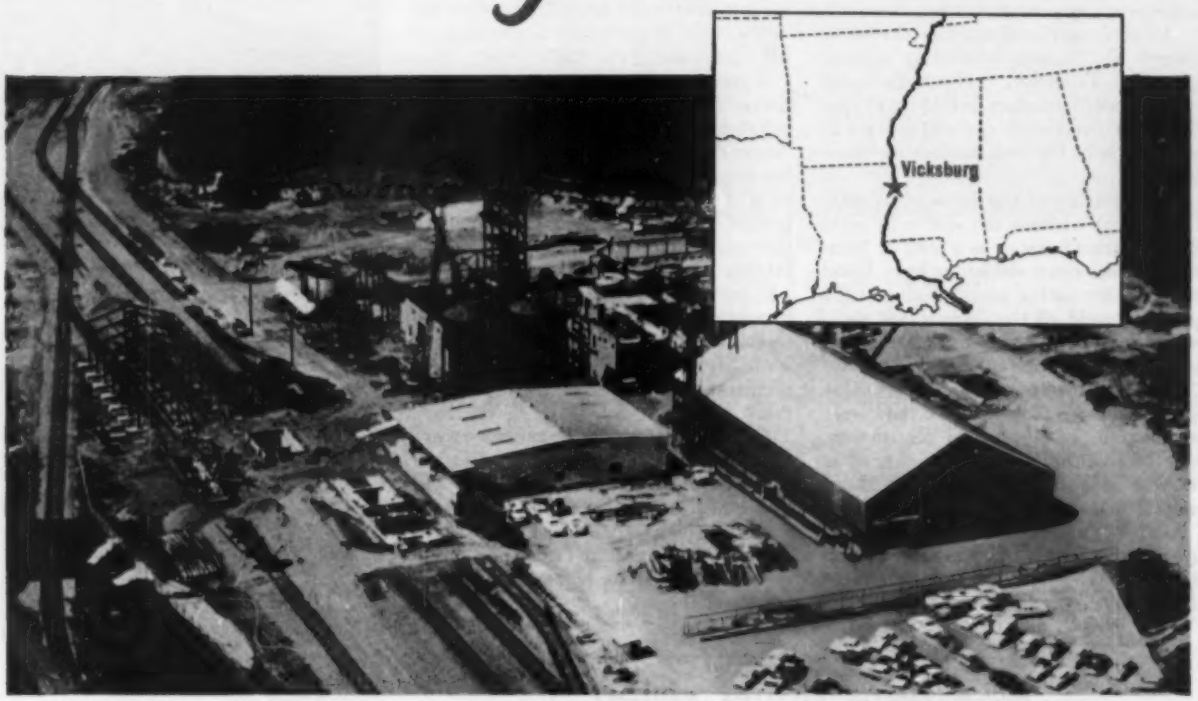
McNeilly said the 20th century housewife is getting cleaner and more reliable agricultural products than her grandmother who had to pick out insects and diseased portions of the fruits and vegetables she brought home. If Mrs. Housewife is told the story well there would be less apprehensiveness about pesticide residues.

Dan Keating, vice-president and gen-

New officers of WACA are (l. to r.) Fred A. Smith, district sales manager, American Cyanamid, second vice-president; George T. Poppic, president, Coastox, Inc., president; C. O. Barnard, executive secretary-treasurer; Frank B. Stewart, general manager, Miller Products Co., vice-pres.

Dan J. Keating, vice-president and general manager of Agricultural Chemicals Division, Stauffer Chemical Co., told WACA delegates they should be proud of their industry's role in research.

Coming Soon...



Aerial view of the new Vicksburg plant of Southwest Potash Corporation—now under construction.

- **EXTRA advantages for fertilizer manufacturers, formulators, mixers.**
- **EXTRA quality in the product you buy.**
- **EXTRA quality in the product you sell.**
- **EXTRA sources of profit for you.**

HIGH-K

SOUTHWEST POTASH CORPORATION

1270 Avenue of the Americas • New York 20, N.Y.

It's Meeting Time!

eral manager of Agricultural Chemicals Division, Stauffer Chemical Co., lauded the industry on its extensive research programs and urged the continuance of the practice of diverting a certain percentage of income to further research.

A cautionary note was introduced by Stuart W. Turner, consulting agrologist, San Francisco. Turner discussed the subject of product liability and how chemical producers can defend themselves in suits for crop damage by growers.

The measure of the damage, he said, is different whether the suit is brought on a contract basis or as a tort. In "contract" cases court decisions have based the measure on the market value of the possible yield of the crop if not damaged, less the production costs, plus credit of such crops as were sold. Under "torts," the measure has been the value of the crops in the condition they were at the time of the alleged destruction, less the cost that would be measured at harvest and the marketing of those crops.

Under "contract," the plaintiff must prove such facts as actual sale, breech of warranty, "superior knowledge" of the seller, timely notice of damage, the taking of mitigating measures, and other factors.

Under "tort," the grower must establish negligence in one manner or another, but the producer must also establish proximate cause other than his negligence, or from the application of his chemicals.

Turner advised that when a grower makes his first complaint the producer get right out to his field no matter what demands he has on his time. Sometimes, the grower can be talked out of a suit, or good relations will reduce his complaints. And the producer can make a thorough investigation himself to establish possible other causes for damage, or even if there were legitimate damage. He suggested that such investigators do not admit liability, do not write letters, and that they take color pictures of the field to assist them in their defense.

Other principal speakers were Charles Paul, director of California State Department of Agriculture, and Louis A. Rozzoni, president, California Farm Bureau Federation, who told WACA members that California farmers spend more than $50 million to control pests alone.

A. V. Slack of TVA discussed suspension fertilizers.

Cec Bayler of Sohio talked it over with Earl W. Davies, Davies Farm Service of Mazon, Ill., during a break.

NFSA FINDS FUTURE BRIGHT

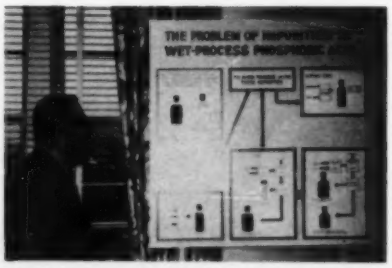
FREE SPEAKING AND FREE WHEELING! That's the way one official of the National Fertilizer Solutions Association described his organization.

Most of the 636 folks who played a part in the 1961 convention at the Edgewater Beach hotel in Chicago, October 30-November 1, seemed to agree on one point: They had never had a better meeting since they were started back in Omaha, Nebraska in December 1954!

Of course, the writer heard someone remark, "What about Memphis? That was a great one, too."

One of the free speaking members of the group was heard to retort, "Who was that talking—Yano the Clown?"

No, it wasn't it Yano, but Terra-



Viewing one of the TVA exhibits is Arthur Vaughn, Vaughn Fertilizer, Windon, Wisc.

Yano the Clown, drumming up business for Terra-Knife Sales & Service, hammed it up for (left to right) John Morand and Charlie Dries of Rainbow Chemicals and George Schuchmann of the Gorman-Rupp Company.

Discussing their favorite subject — liquids — were (l.-r.) John Blydorp and Fred Ledlow, Rainbow Chemicals Ltd., Tilbury, Ontario, Canada, and Jerry Garrell, Golden Sunshine Fertilizer Co., Ltd., Essex, Ontario, Canada.

PANASOL Solvents

FOR PESTICIDE APPLICATIONS

Here are three solvents with properties that make them especially suited for agricultural pesticide applications.

	PANASOL RX-4	PANASOL AN-2K	PANASOL AN-2
Type solvent	Xylene	Heavy aromatic naphtha	High solvency naphtha
Features	High aromatic content —94%	High solvency at low cost	99% aromatics, K-B value—102
	High K-B value—93	High aromatic content —82%	Excellent low temperature stability
	Narrow boiling range	Uniform high quality	Excellent for insecticide-fertilizer combinations
	Low phytotoxicity	High flash—200°F.	Light color, nonstaining

Would you like more facts about PANASOL Solvents for agricultural pesticides? Send for Bulletin No. A-2. Your inquiry will receive immediate attention.

It's Meeting Time!

Knife Sales & Service of Crawfordsville, Ind. certainly added a touch of humor to the meeting with the happy fellow!

Easily equaling the 30, 50, and whatnot megaton range bombs let off by the Commies that week was the outstanding address delivered by the everpopular Dr. Kenneth McFarland, whose job is talking up America before every group he can for General Motors and the American Trucking Association.

Elected president of the group for 1961-62 was Edward O'Nan, Land O'Nan Warehouse, Sturgis, Kentucky. He succeeds Donald J. Humphrey, Flo-Lizer, Inc., Kingston, Ohio.

New vice-president is Dr. J. L. Strauss, Ris-Van, Inc., Belmond, Iowa. Thomas Cochran, Goodpasture Grain & Milling Co., Brownfield, Texas, is secretary and Rhoton Cross of Farmers Elevator Co., Oakville, Ill., is treasurer.

W. Harold Schelm, Peoria, Ill., is full-time executive secretary.

W. Harold Schelm (right), executive secretary discusses future plans with the new president, Edward O'Nan (seated on desk, right), and new vice-president, Dr. J. L. Strauss.

Panel members discussing aids to future selling were (l. to r.): Dr. J. L. Strauss, Ris-Van, Inc., Belmond, Iowa, moderator; G. P. Lippincott, Dorchester Fertilizer Co., Cambridge, Md.; Clark Sumner, A. R. Maas Division, Southgate, Calif.; Jim Merriman, Merriman Fertilizers, Monticello, Ill.; E. C. Spurrier, Monsanto Chemical Co.

New officers of the NFSA are (L. to R.) Rhoton Cross, Farmers Elevator Co., Oakville, Ind., treas.; Thomas Cochran, Goodpasture Grain & Milling Co., Brownfield, Texas, sec.; Dr. J. L. Strauss, Ris-Van, Inc., Belmond, Iowa, vice-pres.; Edward O'Nan, Land O'Nan Warehouse, Sturgis, Kentucky, president. 1960-61 President Don Humphrey, Flo-Lizer, Inc., Kingston, Ohio, far right.

A. V. Slack of Tennessee Valley Authority discussed the future of suspension fertilizers. He listed advantages of suspension fertilizations as follows:

(1) Makes higher grades feasible.
(2) Allows use of trace elements.
(3) Simplifies cold blending.

Disadvantages discussed were:

(1) Cost of suspending agent.
(2) Complication of plant operation.
(3) Possible plugging of nozzles.
(4) Need for stirring before use.
(5) Erosion of equipment.

Other outstanding features of the meeting were a panel of experts speaking on "Aids to Future Sales," including insecticides, pesticides, trace elements, and herbicides and a discussion of side-dressing.

The popular Iowa State University research team, Drs. Joe M. Bohlen and George M. Beal, presented their usual worthwhile studies about the role of the dealer in fertilizer sales.

LABELING A PROBLEM—AAFCO

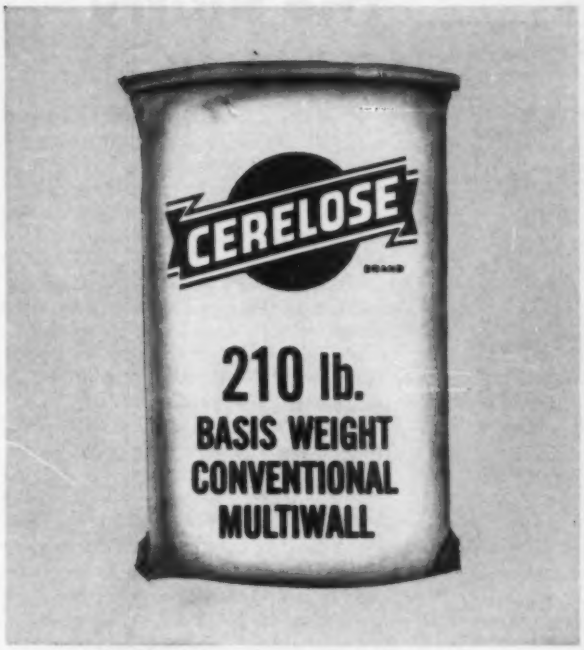
LABELING, official reports, and the quinolium method of phosphate determination were all topics of discussion as the Association of American Fertilizer Control Officials held their 15th annual convention October 26 in Washington, D. C.

In recent years, there has been a tendency for control officials to give less and less detail about the analyses of fertilizers tested in their official reports. While no serious objection was made to averaging the results of many analyses of the same grade for publication, several industry people requested that official publications include individual reports on results of analyses of goods that were passed, as well as on those that were found to be deficient.

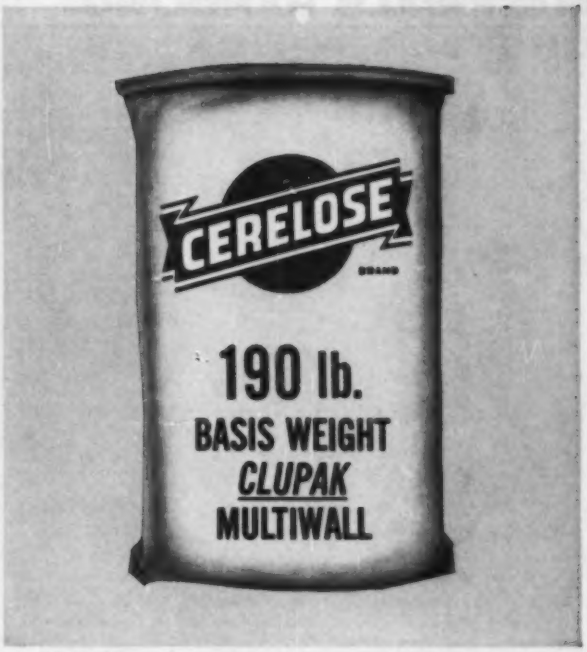
Another problem under discussion was labeling. Some specialty manufacturers want to label their products with only the brand name and their own name and address. Others claim that the grade gives no indication of the quality of the goods.

Consensus of the officials attending was that the weight of the contents and the grade in terms of N, P_2O_5, and K_2O should always be plainly printed on the label. It was pointed out that inasmuch as some plants require entirely different combinations of the principal nutrients from other plants for satisfactory re-

(Continued on page 39)



BEFORE: 5-ply conventional kraft bag
(4 plies of 40 lb. kraft and one 50 lb.)
% of bags damaged: 1.5%



AFTER: 4-ply multiwall CLUPAK extensible
paper (2 plies of 40 lb., one 50 lb., one 60 lb.)
% of bags damaged: 0.17%

CORN PRODUCTS CO. cuts bag damage 88%

with *CLUPAK* extensible paper multiwalls

Loss of product in shipping, and consequent annoyance to customers, was a headache Corn Products Company wanted to remedy. CLUPAK extensible paper multiwalls, because they g-i-v-e to absorb strain and impact, sharply reduced bag breakage—a boon to customer relations.

In tests conducted last year by Corn Products Company, the normal damage rate of 9 bags per 600-bag car was reduced to only one bag in 600—using CLUPAK multiwalls!

Ask your paper salesman about a trial shipment of CLUPAK extensible paper multiwalls.

EXTENSIBLE CLUPAK PAPER **Compared to conventional kraft of equal basis weight has:**

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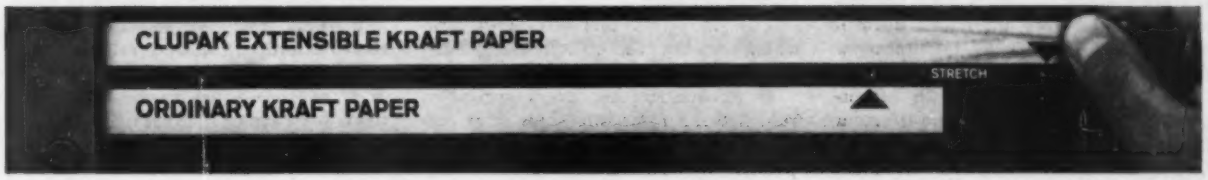


MATERIALS HANDLING
CUSTOM APPLICATION

Blue Mound Grain and Fertilizer Company, Inc., operates a fleet of five 8-ton New Leader lime and fertilizer spreaders mounted on Chevrolet trucks. Discussing the performance of these spreaders are (left to right) Wayne Dalluge, grain manager; John Pleasant, fertilizer plant manager; and Burt Wise, owner of the custom spreading firm.

Every Spreading Job Is A SALES JOB!

"EVERY spreading job is also a sales job"—that's the philosophy that has made Blue Mound Grain and Fertilizer Co., Inc., a leader in the custom application field.

Located 15 miles south of Decatur, Ill., in the heart of one of the midwest's richest farm areas, Blue Mound operates a fleet of five 8-ton lime and fertilizer spreaders. Year around activities include spreading lime, phosphate, and commercial fertilizers on wheat, corn, legume, and oats fields. During the peak of the fertilizer season Blue Mound spreads as much as 600 acres per day.

Jack Towson, manager of the Fertilizer Sales Division, attributes much of this high volume of business to the fact that Blue Mound always tries to take a professional approach toward business.

"For example, our spreader operators do not service their own equipment," Towson said. "Our drivers are carefully trained as operators and we want them to feel that their job is important enough to justify their concentrating on it. So we maintain a crew of mechanics to service all our spreader trucks."

Each Blue Mound operator is permanently assigned to a specific spreader truck. In this way, Towson pointed out, he gets the feel of his own machine and knows how to use it to achieve outstanding performance.

All trucks are kept in garages whenever they are not in use. The vehicles are washed frequently and truck bodies are covered with tarpaulins when they go out on spreading jobs.

"Our customer judges our attitude toward our job by the appearance of our equipment," explained Towson.

Blue Mound's reputation in its market area is one of prompt service.

"With only 24 hours notice, we can get one of our New Leader L-19S power take-off driven combination spreaders out to any job site in our market areas," Towson said. "We operate anywhere within a 45-mile radius of our headquarters in Blue Mound."

Accurate spreading is another key to Blue Mound's success. Machines are checked at regular intervals for accuracy of application. Towson reported that they have found the spreaders so accurate that they "never miss by as much as 20 pounds when spreading 300 pounds per acre."

Towson offers this advice to newcomers to the custom spreading business:

- Remember that every spreading job is also a sales job, since your customer's reaction will determine whether you get repeat business. ☆

The Slurry

ARE YOU IN THE KNOW?

If you're a fertilizer dealer better get ready to "hit the books"—unless you're "in the know" on soils. According to a recent study conducted among Iowa fertilizer dealers by TVA, the ones making money know the scoop on soil fertility.

More than a 100 dealers were given a quiz on fertilizers. Those dealers who showed a high knowledge made an average gross profit of $7900 on fertilizer. Those with low-knowledge scores had an average gross profit of $2100.

Maybe your school days are long past—but isn't $5000 more profit worth a crack at the books?

GOODBYE, BLUEJEANS!

Get ready to shed a tear for the cartoonists of the nation. No longer will they be able to rely on their standard caricature of Joe Farmer, in overalls chewing a stalk of wheat.

Why? 'cause farmers are beginning to yell "goodbye, bluejeans"—"hello, Hart, Schaffner, and Marx."

In case you haven't noticed, there's a metamorphosis taking place in agriculture. Joe Farmer is no longer a "hayseed"—if he ever was one. He's becoming a sophisticated businessman.

Take a tip from *The Slurry* — the quicker fertilizer and pesticide dealers learn this, the more their sales will increase. The reason? The businessman farmer who relies heavily on new technology is far more dependent upon his fertilizer and pesticide dealer for making decisions about usage than the old style Joe Farmer. He takes his trade to the man who can show him how to use the product most profitably.

Rauol Allstetter, vice-president of NPFI, unveiled the new portrait of Joe Farmer at the recent Southeastern Fertilizer Conference. He pointed out that the scientific revolution in farming now taking place is being accompanied by a management revolution.

Farmer businessmen will base their decisions on a hard-boiled basis of business economics. They will be better educated and will become more expert in measuring the economic benefits of any practice.

Where do the fertilizer and pesticide dealers come in? Allstetter said that the scientific aspect of farming will become so complex that farmers will need and demand more highly specialized technical assistance than is generally available today. The progressive dealer will start building up those services now.

What about the poor cartoonist? Well, maybe — just maybe — he could draw Joe Farmer in his Hart, Schaffner, and Marx suit chewing a stalk of wheat. What do you think?

Formulate more potent pesticides with inert Celite Fillers

To obtain exceptionally high toxicant concentrations, manufacturers of both liquid and dust formulations use Celite® diatomite fillers. And, because Celite is compatible with all toxicants, it can be used in any formulation.

Celite's high absorptive capacity (up to double its own weight in liquid) permits such high concentrations as 75% DDT, 25% Malathion, 50% Heptachlor and 50% Chlordane. Thus, production, packaging and shipping costs can be substantially reduced. Celite also offers you two to three times more volume per pound than equal weights of other types of fillers.

To get full details on Celite, the inert mineral filler, write Johns-Manville, Box 325, New York 16, New York. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

JOHNS-MANVILLE JM PRODUCTS

CO-ORDINATION and CONTROL

Jake Smith, farm chemicals manufacturer, learns the importance of communicating

JAKE SMITH sat behind his desk, feet perched atop the leather tooled desk pad. A cigar was held absentmindedly in one hand, its ashes fluttering down onto the pale green carpet. For once, his office was quiet—no telephone ringing, no intercom buzzing. In fact, Jake thought, it's too darned quiet!

He'd had a strange feeling about work for several weeks. Nothing that he could put his finger on—just a feeling of uneasiness. He tried to remember when it had started. That's right, he thought, it was the day I walked over toward where Joe and Charlie were talking and they had suddenly hushed up as soon as they saw me. Wonder what that was all about. Some rumor making the rounds of the "grapevine" probably. I'll have to keep my ears open, he thought.

Whether he knows it or not, Jake is in trouble. One of the first signs of a breakdown in communications between a manager and his employees is the growth of that old problem—the grapevine.

There are three elements which are necessary if people are to know what is going on, what is intended, and what they as individuals are expected to do. The first — and most important — of these is communication.

Too much or too little information flowing to his employees create problems for a manager. In Jake's case, too little information has nurtured a grapevine that will be hard to kill. And, oftentimes, it is more difficult to counter wrong information passed by the grapevine than to inform your employees correctly in the beginning.

Fifth in Series

The escapades of Jake Smith, our mythical farm chemicals manufacturer, are based on a manual on management prepared by the marketing staff of North Carolina State College—EDITOR.

This breakdown in communications can lead to poor co-ordination of the company's activities.

For example, Jake's sales department is planning a big sales campaign. If it is to be successful, the production, warehouse, and delivery departments must assure prompt delivery. If co-ordination is lacking, more may be sold than can be delivered, thus creating ill-will and a loss of customers. Co-ordination and communication go hand-in-hand with the success of this sales campaign.

Once the sales campaign is launched, Jake's problem becomes one of control —keeping informed of its progress, interpreting trends and results, and knowing where, when, and how to initiate remedial action in time.

CONTROL IS VITAL

This won't be much of a task for Jake, providing that the planning, organizing, directing, and co-ordinating have been carefully completed. Control gives him a chance to compensate for any misjudgment, variation, or unexpected developments.

One of the first steps he should take is to communicate to his personnel the objectives and goals of his control program. For example, if warehouse personnel know the objectives of the sales campaign, many of the difficulties arising in shipping orders promptly can be overcome.

There are certain principles of control which Jake must master if his controlling function is to be carried on effectively.

First, the objectives and goals of his control program must be communicated to his personnel. By establishing policies and auditing conformity of his firm to them, Jake can handle control very efficiently.

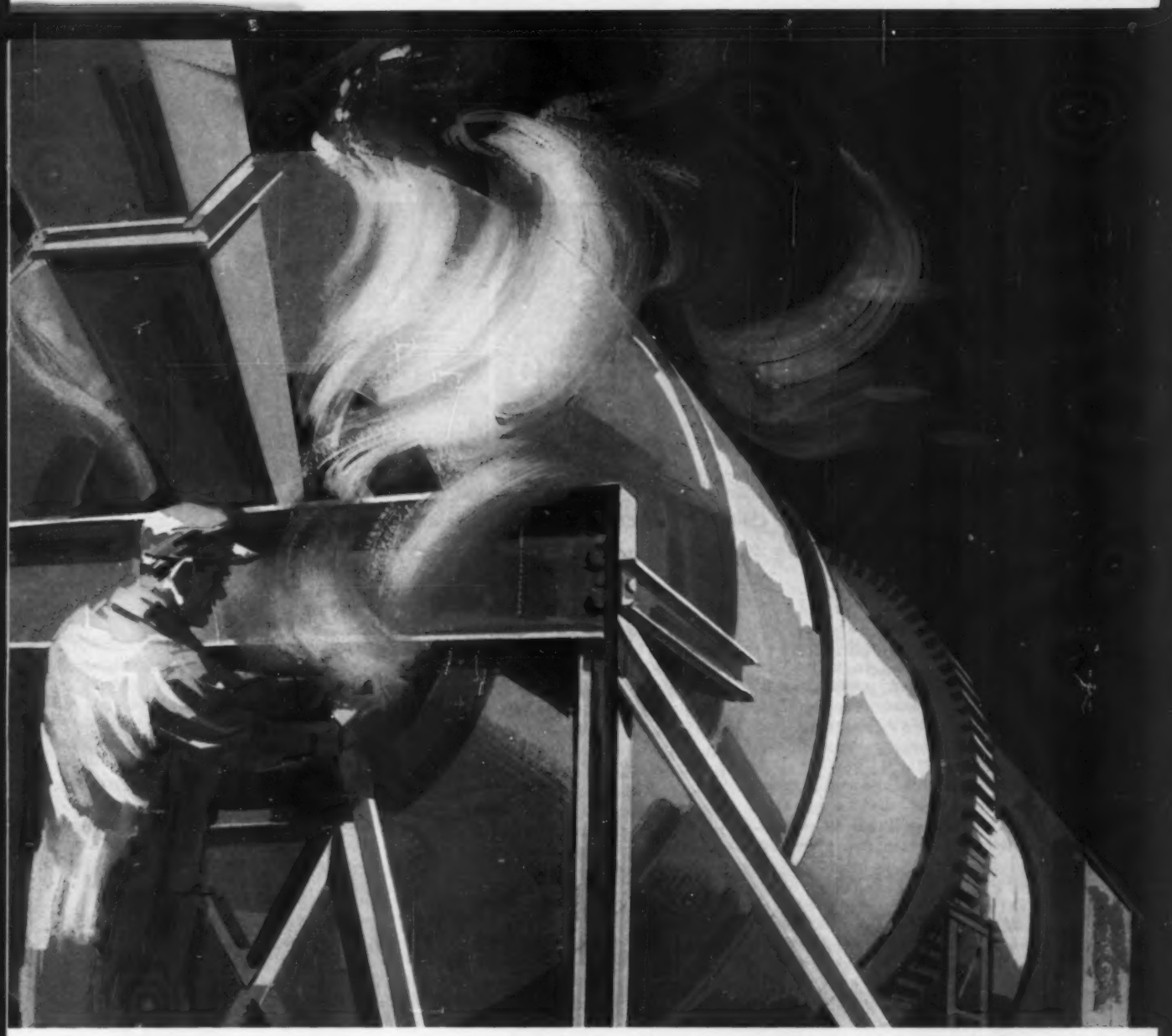
Jake must set specific standards in advance. Responsibility for meeting standards of performance must be fixed. For example, if the responsibility for meeting standards of performance is placed with production personnel, problems growing out of clashes between quality control and production personnel can be reduced.

Like most managers, Jake thinks the area of control centers around records

and reports. But these records are of little value unless *they tell him something*. Records can be used to prevent the occurrence of conditions which result in surprise situations.

Jake has a responsibility as manager to train his personnel in the proper use of controls. His employees, in addition to understanding the reasons for control, must be provided with an incentive to do the job. Providing rewards for persons who exercise the control function effectively is a means to this end. The rewards may be of any type, monetary or non-monetary, but they must provide the incentive to do the job and create a feeling of satisfaction among employees with a job well done.

By improving communication and exercising proper controls, Jake can nip that troublesome grapevine in the bud. ☆



Texaco can help you stop loss of fertilizer raw materials

Many people in management believe that nitrogen loss in ammoniation, over-analysis, bag breakage, loading and unloading, amounts to only 4 or 5%.

Actually, only the best-run plants have such low losses. More typically, they may approach 15%.

These are findings by Texaco technical experts who help tighten procedures in fertilizer plants as part of the over-all Texaco "Stop Loss" program. For instance, nitrogen losses – including losses of ammonia, N_2 and oxides of nitrogen – are found to be a prime problem in making mixed fertilizer. Our people can advise on proper methods of mixing to avoid losses during ammoniation . . . on plant processes such as crushing, screening, drying, cooling. You can also tap our experts' knowledge of transportation and unloading equipment, storage and handling.

Would you like to have a Texaco man visit you for a look at your possible losses? The service is free. Write to Texaco Inc., *Petrochemical Sales Division*, 135 East 42nd Street, New York 17, N. Y., or 332 South Michigan Avenue, Chicago, Illinois. FC-42

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You Can Improve Your Industry's Image

By JACKSON V. VERNON
Vice-President
FMC Corporation

Farm Chemicals presents the third article in its series on "How We Can Improve the Pesticide Industry's Image"

ACCORDING to anthropologists, Paleolithic man used grunts and gestures to make a point, punctuating his conversation with screams and wild gestures, and undoubtedly bashing his opponent with a stone axe to emphasize his remarks.

Maybe that's what the farm chemicals industry needs to combat the damaging publicity which continues to emanate from highly respected newspaper and magazine editorial offices despite the best efforts of our industry to obtain fair and impartial treatment.

At least a little of the Joe Neanderthal touch would create some degree of sensationalism which, it is said, is needed in order to make a fact more readable!

There is one other way — repeated truths concerning our business will eventually begin to sink home in the minds of the public and public opinion will swing in our favor. Start telling, again and again, some of the bald facts of our industry's case that have more to do with the economics of the matter rather than the aesthetic.

Fact No. 1—Four out of five people in the world die either directly or indirectly from starvation. It is only in America, where our farming is guided by science and its tools, including chemicals, and where starvation has virtually been banished and where overeating has become a problem, that we can afford the luxury of carping and criticism.

Fact No. 2—Without pesticides, production of commercial quantities of many of our common fruits and vegetables would cease. Those surviving the onslaught of insects and plant diseases would be wormy, full of disease, and in very short supply at extremely high prices.

Fact No. 3—If chemicals were not used to protect cattle, sheep, hogs, and poultry from only six major external parasites, the cost of producing these meats for our table would increase well over $100 million annually. The result? Much higher prices per pound for meat of substandard quality.

Fact No. 4—The traditional ratio of one-fourth or one-fifth of income now spent on food by an average U. S. family would rise sharply to one-third or even higher if chemicals were not used to protect food crops during production, in transit, or in storage. Since man *must* eat, more money spent for food would drastically curtail the amount of family income available for purchasing other goods such as autos, appliances, etc., and our whole economy would regress and eventually collapse.

Fact No. 5—Were it not for pesticide chemicals, the mosquito, the fly, the louse, the flea, and a host of other creatures would once again convey the almost forgotten scourges of plague, yellow fever, malaria, sleeping sickness, typhus into an undernourished human population and hurl it back into the misery and debilitated existence from which science has emancipated man in the last 150 years. Medical bills would rise to astronomical heights if such conditions existed.

These five facts are only a few of the many examples of the benefits now enjoyed and taken for granted by the general public which have been made possible *only by the use of pesticides.*

We in the farm chemicals business are fully familiar with these and many other facts. But what are we doing to communicate these facts to others?

As an industry, we haven't been asleep at the switch in this matter of communicating our story to the public. NAC Association has developed a number of simple but highly effective programs specifically designed to tell the plain facts about pesticide chemicals—why and how they are developed and

Jackson V. Vernon is no newcomer to the struggle to improve our pesticide image. As director of NAC and past president, he has been closely identified with the association's publicity program. A member of the Niagara organization since 1923, he became president of Niagara Chemical Division and vice-president of Food Machinery and Chemical Corp. in 1952. He is now vice-president in charge of marketing and distribution of FMC Corporation.

safely used to protect food, property, and health.

The information developed for these programs is supplemented by official publications of National Academy of Sciences-National Research Council, an unbiased organization of distinguished scientists dedicated to the furtherance of science and its use for general welfare. The Academy is empowered by Congressional charter to act as an advisor to the federal government in scientific matters and its many boards and committees, with membership of over 3000 qualified persons, are often called upon by Congress and by government agencies for advice and counsel on various issues involving the public at large.

The Food Protection Committee and the Committee On Pest Control-Wildlife Relationships are two groups whose official reports contain a wealth of unbiased, factual information which, disseminated through various communication channels, will serve adequately to stay any controversy concerning pesticides in these fields.

The Public Health Service, Food and Drug Administration, and USDA have a number of well-written publications which go hand-in-hand with our industry's information programs.

But *we* can supplement the planned programs now being carried out by industry organizations and other groups.

"Take Your Light From Under the Bushel" might well be the theme of the offensive. It must be started *within* your own organizations. Don't forget that your neighbors, relatives, social friends, suppliers, and customers have all been bombarded from time to time with publicity adverse to our industry. It's high time we did something positive about it!

At FMC, we recently widely circulated an intercompany bulletin entitled "Presenting Pesticides to Your Public." This was sent to all sales, technical, plant, and office personnel pointing out the importance of correcting misunderstanding of our industry and its products and building what the Madison Avenue folk call a "good image."

Many interesting bits of information come to all of us from various sources, both within our own companies and elsewhere, which is *not* speculation but fact. Check it to make sure you are right —then pass the word!

SPEAK UP—OFTEN!

Encourage your personnel to accept speaking and writing assignments. Literally reams of background material, even a planned program, is available from a number of sources including NAC. Take *every* opportunity to present the facts to non-farm, urban, and suburban audiences. Any organization no matter how small will benefit from hearing your story.

Incidentally, it won't do your own company any harm either for you will be identifying yourself. Your own, as well as the industry's "image," will be enhanced at the same time.

If you're too busy to get some facts together, ask NAC for a copy of their illustrated talk, "Pesticides—Boon to Mankind." This presentation is broad enough to be of interest to many urban groups, is illustrated through 57 color slides, and is even recorded so that you need only to personally present brief opening and closing remarks. How much easier can we make it?

This slide program, coupled with a supply of *Open Door to Plenty*, the NAC publication that details our industry, will give you a first class program and make a good impression on a group who will, in turn, tell the facts to others. This is an example of "influencing those who influence" — a public relations trade practice that is infallible.

One other way in which you, as authoritative representatives of our industry, can provide much needed assistance is to write a few letters to the editors of your local newspapers and national magazines whenever adverse articles or stories obviously based on misinformation appear.

Communicate! Tell the facts, the authentic and valid information, the truth about farm chemicals! Talk about them, sincerely and forcefully—and often—to *your* public. ☆

One of the most popular panels was the one composed of (l. to r.) G. E. Smith, University of Missouri; P. E. Stone, Virginia-Carolina; and T. P. Hignett, TVA. They discussed new materials in fertilizer formulation.

Enjoying a break in the Round Table sessions were (l. to r.) Ray Yates, Ashcraft-Wilkinson; W. P. Morris, Duval Sulphur; Robert E. Ashcraft, Ashcraft-Wilkinson; C. T. Nixon, Ashcraft-Wilkinson; and E. F. German, Duval Sulphur.

Round Table Discusses Bulk Blending

NEW MATERIALS in fertilizer formulations were discussed by a panel of experts at the 1961 Fertilizer Industry Round Table. The meeting, attended by a record high of 434 industry representatives, was held at the Mayflower Hotel in Washington, D. C., November 8-10.

Capable leader of the panel was T. P. Hignett of the Tennessee Valley Authority. Others on the panel were G. E. Stone, Virginia-Carolina Corporation, and George E. Smith of the University of Missouri.

The materials consisted of a group of granular, high-analysis products containing both nitrogen and phosphorus. These N-P materials were divided into two classes:

(1) the diammonium phosphate materials 25-53-0, 18-46-0, and 16-48-0, and (2) the high nitrogen N-P materials 30-10-0, 20-20-0 and 20-10-0.

Large annual tonnage of the diammonium phosphate group and the number of new plants that are being constructed or are on the planning boards prompted the discussion of the popular subject, Hignett said.

A principal use of the new materials is in bulk blends, and several questions about the problem of bulk blends had been received, he added.

The new materials are especially suited for bulk blending because of their high analysis, physical form, compatibility with other materials used in bulk blending, and low cost per unit of plant food. Diammonium phosphate and 30-10-0 have been identified as ingredients of least cost bulk blends.

Hignett said that the particle size and shape of the new materials provide a good match with some of the available granular potassium chloride and with prilled ammonium nitrate or urea.

"Thus, it is possible to select materials for bulk blends that should not segregate," Hignett said. "The use of two-nutrient materials in bulk blends may help minimize any nonuniformity of nutrient supply in the field that may result from segregation."

Hignett said that some of the new materials have found widespread use in the manufacture of chemically processed mixed fertilizer. He mentioned pilot-plant studies in which diammonium phosphate was used in formulations to produce high-analysis granular mixed fertilizer. Some of the grades that were made successfully in the pilot plant were 12-24-12, 16-20-0, 15-30-0 and 8-24-24.

Discussing the question of the effect of the presence of diammonium phosphate on the absorption of ammonia by superphosphate, Hignett showed some slides that indicated that diammonium phosphate will react with superphosphate.

"There has been a substantial increase in the size of farms, the average age of farmers, and the use of fertilizers in the Midwest," George E. Smith, of the University of Missouri, told the group. Smith caused quite a stir when he said:

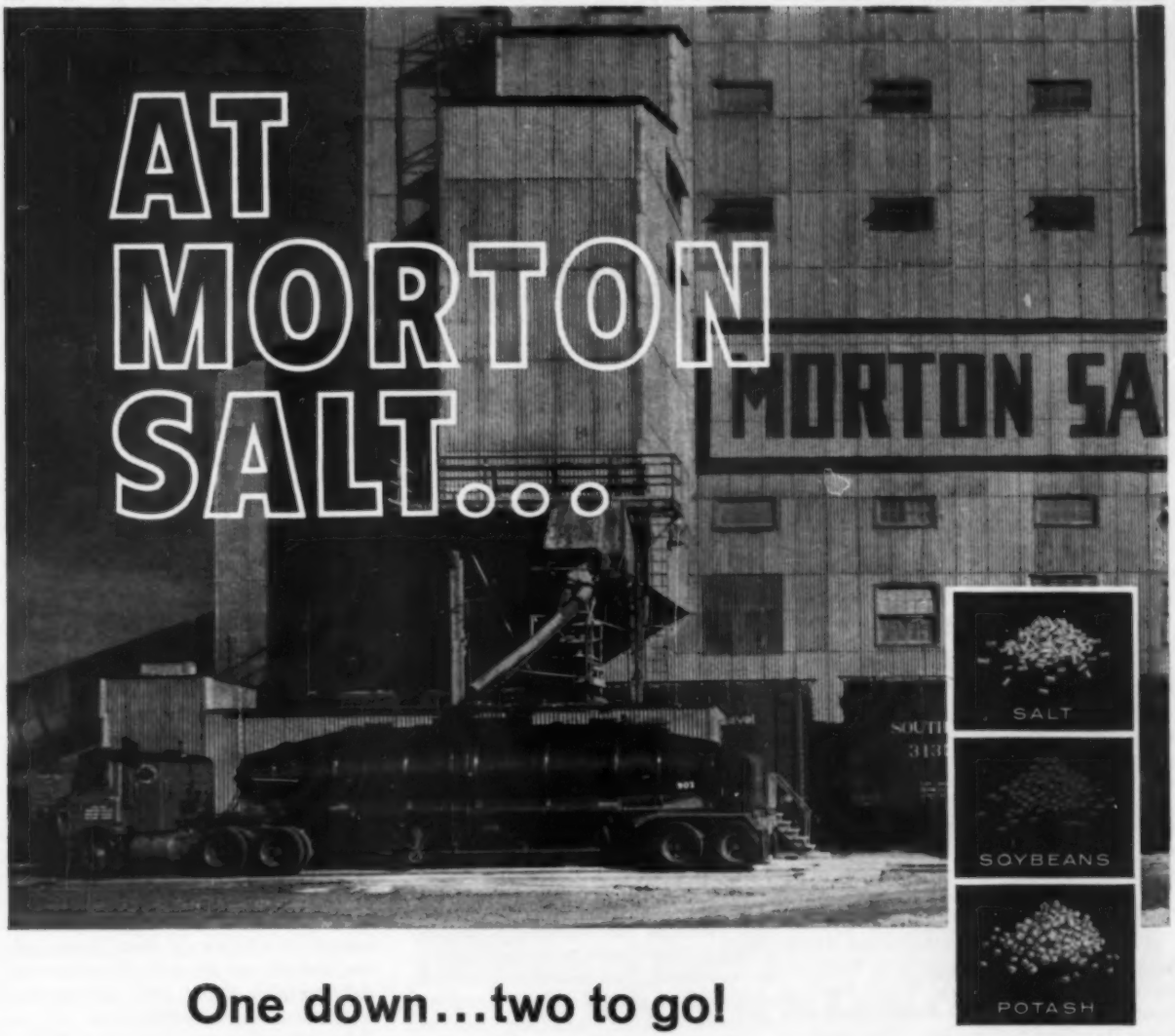
"There is much interest in mechanization of all farm operations and the minimizing of hand labor. The handling of bagged fertilizers is now one of the most laborious tasks in crop production. Truck spreading of fertilizer is gaining in popularity.

"Bulk blended fertilizers accounted for about 28% of the available nutrient tonnage sold in Missouri last year."

(Continued on page 46)

Left—Vince Sauchelli "practicing what he preaches!" The Round Table "prof" called for less formal participation and more discussion on the floor in future Round Tables. Exchanging ideas with Vince was R. L. Somerville, Singmaster & Breyer, New York. Center, Left—**Frank Nielsen,** IMC, discusses a point with Paul W. Gilmore (left), plant manager of Eastern States Farmers' Exchange plant in Detroit. Center, Right—**Wayne King,** of W. S. Tyler Company, Cleveland, sponsored a breakfast for the Round Table executive committee. He's shown speaking to the group. Right—**H. L. Marshall** of Olin Mathieson explained some of the aims of the Round Table at the breakfast sponsored by Wayne King. Next year's Round Table will be held Oct. 24-26 at the Mayflower.

BUTLER PNEUMATIC TRAILERS



One down...two to go!

Product versatility is the Butler pneumatic trailer's chief specialty. The one pictured above has just loaded salt at Morton Salt Company's Grand Saline, Texas, plant. After unloading this salt at El Paso, the Butler bulker will go on to pick up and deliver potash and soybeans for two other companies. And it will do all this on one round trip! No wonder so many profit-conscious chemical companies are turning to progressive for-hire carriers, equipped with versatile Butler bulkers to expedite deliveries for their products.

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MATERIALS HANDLING
CUSTOM APPLICATION

Part I—This is the first of two reports on the 1961 Fertilizer Industry Round Table. Next month we will discuss unloading of anhydrous ammonia and solutions at both high and low rates, bag and packing equipment, palletizing and stowing of bags. This month we will attempt to show that . . .

"Handling is part of production"

MATERIALS HANDLING was a major topic at the annual Fertilizer Industry Round Table meeting at the Mayflower Hotel, Washington, D. C., November 8-10.

Interest in application of both liquid and dry fertilizers brought a new dimension to a meeting which normally discusses manufacturing only. Other subjects were the weighing of materials, unloading of anhydrous ammonia and solutions at both high and low rates, pressure systems and use of air pumps in unloading, and many other subjects. Representatives of bag manufacturers discussed sack construction and bag packing equipment. Palletizing and stowing of bags were also discussed.

Space does not permit a thorough discussion of these topics, but brief resumes of the most interesting subjects will be presented.

"ORGANIZING & ACCOUNTING"

The words materials handling are being given new definitions by industry, according to W. B. McClelland, headquarters secretary of the American Material Handling Society, Inc., Cleveland, Ohio.

Such definitions as the "creation of time and place utility," . . . "all activities in industry and commerce having to do with getting the right materials in the right quantity to the right place at the right time in the right condition," . . . and "all activities having to do with the movement and storage of goods" were presented by the speaker.

Materials handling falls into two broad classifications: (1) materials which are finished ready for use by the ultimate consumer and (2) unfinished goods or those requiring more production work before being ready for consumer's use.

"The primary objective of manufacturing is the physical or chemical alteration of products found in nature to make them usable," McClelland said.

He said that "any manufacturing set-up involves three steps or phases of these handling activities which might be termed the transit, process or distribution phases . . . getting the materials into production operations, through production operations and then away from them."

Activities involved in each of these three phases are: Transit phase—purchasing, production planning, inventory control, transportation in-bound, inspection, receiving, incoming stores and issue; Process phase—in process stores and intraplant transportation; Distribution phase — outgoing stores, shipping and transportation outbound.

Is it desirable for the manufacturer to separate the functions which give a product salable shape from those having to do with the moving and storage of goods?

He answered this by saying that such an organizational setup will be difficult to sell to top management because of the problem of demonstrating benefits. Benefits are usually measured in dollars which must be accounted for accurately under present accounting procedures, he continued, but material flow costs are seldom separated into functional accounts. Instead, materials costs are usually allocated to general overall expense accounts.

He suggested that "it might be enlightening to take a year's operating statement for a manufacturer and segregate (1) the overall cost for moving and storing and (2) those costs incurred for only those specific operations which make the products more salable."

McClelland said that in most concerns such items of cost are available but not combined as suggested. In other words, the accountant likely has the information to prepare reports as management wishes.

If management wishes to know the cost of material flow, the accountant can itemize and summarize costs in order to provide totals, if so requested, he said.

McClelland said that organizing and accounting go together like love and marriage. "We can't have one without the other.

"If management would see flow costs as individual items and realize their magnitude, there might be some 'courting' with the idea of organizing for material flow," he added.

"The director of manufacturing has but two functional categories to supervise: (1) activities pertaining directly to giving the product salable shape which is creating form value and (2) movement and storage of goods which is creating time and place value.

"Minimizing costs is the concern of everyone," he went on. "One way to cut costs is to eliminate or minimize container costs. Each carton, barrel, keg, pallet or even label which accompanies the consumable merchandise is a necessary evil."

The speaker suggested the following equipment for an integrated handling system: (1) a motorized carrying element suitable for horizontal transportation of any agricultural commodity, (2) removable bodies (containers) suitable for retaining these commodities, and (3) devices of both permanent and portable types for transporting these commodities vertically.

Applying this basic thinking to fertilizer, he said:

"If a farmer had such an integrated system for handling, he might arrive at a fertilizer plant with a flat bed semi-trailer on which were containers, say 44″ x 27″ x 40″ high, into each of which he would like to have placed 1 ton of fertilizer. If these were weatherproofed, he could then remove them from the semi with a portable elevator (farm tractor with fork type mast) and store them in the barn yard, or in the field where he intended to plant crops. With this same portable elevator he could dispense the contents of the containers directly into the drill or whatever machine was planting the crop. The seed could be handled in the same manner. When harvesting the crop, the same containers could be used to collect the grain and deliver it to the elevator or feed bins.

"To be workable a unitization program and an integrated handling system must be initiated and controlled by

the receiver of the commodity," he concluded.

DRY BULK TRAILERS

Truck transportation of dry flowables including fertilizers and their basic components, using a pneumatic system for unloading the product was discussed by Robert M. Geisenheyner of Butler Manufacturing Company.

"Shipping by truck and unloading pneumatically is doing for the dry bulk transportation industry what the jet engine offers commercial aviation," the Butler representative said.

He said that his company, in projecting the dry bulk transportation into the future, could see the need for equipment that was versatile enough in its capabilities to handle a variety of flowable products in addition to those which lend themselves to aeration in order to flow.

Thus, Butler introduced a pressure unloading trailer having a clean bore payload compartment incorporating a series of steep slope hoppers having outlets manifolded by means of a common discharge pipe. This hopper pressure trailer is accepted as the latest improvement of such equipment, he said.

The pressure differential system employed by Butler meets the problems of those products which fluidize as a result of aeration as well as those granular materials which do not possess this characteristic, Geisenheyner said. How does it work?

To start operation, air is introduced into the vessel along the length of the hopper slope sheets, and is diffused into the product through special aeration equipment. Supply air is divided by a control valve.

Generally, as much air as the material flow will tolerate is introduced into the unit. Free flowing materials require less air assist in the hopper area, and an air balance must be reached to avoid plugging of the system. Air not introduced into the vessel is added to the flow below the hopper discharge valves.

By such a procedure the product particles are mixed with air so that they tend to flow without touching one another, and therefore tend to flow very freely in a conveying stream of air through hose and piping to the storage silo.

PNEUMATIC UNLOADING

The Butler pneumatic unloading trailer is simple, rapidly stabilized to achieve optimum flow, is not overly sensitive to valve adjustment, and does not require constant attention by the operator during unloading, the speaker explained.

"The normal unloading procedure is to direct the entire flow of air into the trailer tank. By so doing, the vessel is pressurized and the product is aerated. After reaching a desired tank pressure, a portion of the air is diverted to the unloading manifold connecting each hopper to the unloading hose. Hopper outlet valves are opened individually or simultaneously, depending upon the product, thus permitting flow from the trailer tank to the storage location. There are no moving parts on the interior of the vessel to accomplish unloading. Once the unloading operation is stabilized, constant attention by the operator is not required," he went on.

Tank pressure shown on a prominently located gauge remains stabilized until the "clean bore" portion of the payload compartment served by each valve becomes empty. When this occurs, the tank pressure decreases to zero, and the outlet valve is closed.

The steep slope hopper design shape of Butler trailers, augmented with an aeration system, produces a combination capable of unloading finely ground talc-like materials as well as coarse granular products, with equal ease, achieving complete clean-out, according to Geisenheyner.

Dry bulk products are regularly being delivered into storage silos in excess of 150 foot elevations, or 200 foot horizontal distance, without problems, he added. Coarse granular fertilizers may attain only one-half ton per minute while light flowables will discharge at 1800 pounds per minute. Not all products are delivered into closed

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HOW WE CAN CAPTURE OUR SHARE

(Continued from page 13)

from Great Britain, only small amounts of agricultural chemicals were imported for use on the cocoa crop. It had been shown in the English supervised research stations in Ghana that yields as high as 3000 pounds of cocoa beans per acre were possible using only the simplest of fertilizer and pest control practices. Yet, the average annual yield of cocoa beans for years had been only 250 pounds per acre.

Following independence, a study showed that one of the reasons for this low yield was that a grower needed only the returns from the sale of 250 pounds of cocoa to buy enough staples to last from one year to the next and to satisfy his basic wants and desires. Thus, each year he would harvest only enough to supply his minimum cash needs. The remainder of the crop, if there was any, was left to rot on the ground. Yet the government desperately needed funds and world markets for cocoa provided the only opportunity to obtain them.

To solve this problem, the government abolished private buying of cocoa beans and all beans were purchased by government agencies. The government did not, however, pay world market prices. Instead, they paid the growers only a fraction of the price previously paid by private buyers. The grower found that he had to harvest more cocoa to be able to purchase his year's staples. To do this he had to fertilize and control insects. The government arranged for the purchase and availability of suitable products. This was the first step toward establishing pest control practices.

Imperial Chemical Industries learned of this new approach and took advantage of it by sending technical personnel to Ghana to help the government find the best pest control program. The best material turned out to be lindane. Because of their efforts, ICI got the business—$4 million worth. In a period of two years Ghana's agricultural chemical market increased from almost nothing to over $4 million annually. In 1960 alone, Ghana imported over 60,000 motor-driven knapsack sprayers, probably more than they had purchased in all of their recorded history.

Another example occurred in Egypt. Ten years ago Egyptian farmers were picking the worms from the cotton plants by hand. Then came the overthrow of Farouk and a socialistic type of government was established. A withdrawal of foreign funds occurred and the country desperately needed hard currency. There were two major sources of dollar income—the Suez Canal and the sale of fine long staple cotton. Top priority was placed on increasing the yield of cotton in order to increase hard currency receipts.

An almost unbelievable change took place. In a period of four to five years Egypt became one of the largest agricultural chemical markets. Today, Egypt imports approximately 30 million pounds of insecticides, and this amount is increasing yearly.

In 1959 Carbide realized that Egypt would be a major market for Sevin. No attempt was made to work through a private distributor. Instead, a direct approach to government research workers was made. As a part of this approach, technical meetings were held for top government and research people. Our own personnel were sent to Egypt to participate in these meetings and to work with and instruct government agencies in proper approaches to testing and field trials. After two years of intense effort aimed at helping the Egyptian government agencies, we finally convinced them that our product gave control of all major cotton pests, including the disastrous army worm which this year threatened to destroy Egypt's prime money crop. This program culminated in the recent airlift of 2 million pounds of Sevin to Egypt under emergency circumstances.

With the possible exception of soybeans, there is no single major U. S. market for agricultural chemicals that is not exceeded several times abroad. In the single case of cotton, the U.S. acreage of 12 million acres compares with 65 million acres in the foreign free world. Many factors prevent the extensive use of agricultural chemicals on the bulk of this acreage, but the potential is there. Statistics show that the volume of usage of pesticides overseas is several times that of the U.S.

It would not be proper to assume that these markets are to be had simply for the asking. There are many problems which can be very real barriers to your sales program.

Local regulations. Lack of registration requirements or weak laws regarding labeling and residue control in many countries encourage sales of products before data are available to satisfy our strict registration and residue requirements here in the U.S. Competition is therefore keener, more vigorous, and can be very harmful in its effect on a product which has been tested and developed at great expense in the U.S.

Political influence. The political situation in many countries is such that a few individuals decide what pesticides will be used. They have the power to refuse the importation of a pesticide and can, if they wish, limit importations to a single material.

Credit terms and import licenses. The credit problems are many and diffuse. To compete with the German firms and others who offer 360 days, a flexible credit policy must be developed. In Central America credit is often more important than price. The sorting out of poor from good credit risks is no small task. Markets may be totally unavailable because of the lack of hard currency or import licenses. For example, Sevin has performed in an outstanding manner in India. Yet, our sales there will be negligible because of a lack of import licenses. In other markets, such as the Philippines, Indonesia, Burma, etc., the availability of import licenses is a serious drawback.

Personnel. The problems of acquiring personnel and adequately training personnel for overseas duty has been a serious one. It is desirable to hire Nationals of each country if possible.

Distribution. Each country presents its own distribution problems. The situation existing in each country must be studied by itself and a distribution system devised which will work for that country but also fit into our overall distribution plan. To do this, it is necessary that each country be visited by someone qualified to analyze the market and to determine the best distribution system for each particular set of conditions.

History. Some markets are considered as historic or traditional markets by firms from particular countries. If not protected by preferential tariffs, as is often the case, these firms will sell at extremely low prices if necessary in order to prevent encroachment by a new product from some other country.

For reasons that will be explained later, U.S. firms have not participated heavily in markets outside of the western hemisphere. The vast world market for pesticides is currently dominated by German, Dutch, and English firms.

The German firms (Bayer, BASF, Schering, and Merck) have been very successful in increasing their share of the world market by using the following approaches:

Developing new chemicals: In the last five years many new chemicals have been developed by German firms. This has created the impression that German companies dominate in the field of research and that distributors over the world would do well to ally themselves with a German firm.

Providing technical personnel: German firms support their marketing efforts in each country with specialists capable of directing the use of their products. In Mexico alone, Bayer has 15 entomologists who call on growers and educate them on Bayer products. Bayer has learned that distributors

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IT'S MEETING TIME!

(Continued from page 26)

sults, the grade is important to the purchaser.

The present laws of some states assess penalties for mis-labeling in terms of the value of the goods actually sold. When a store has only a few packages of a product on hand, and the weight of each is less than 10 pounds, the penalty may be less than $1. States do not attempt to collect such small amounts. It was suggested that a minimum penalty of $10 be collected for any infraction of the regulations.

The quinolium method for phosphate determination was recommended as being easier to make, more accurate and reproducible than the volumetric method now in general use for available phosphoric oxide.

J. W. Kuzmeski, of Amherst, Mass., was elected president, succeeding C. V. Marshall. The annual proceedings will be published and will be available at $2 per copy from Secretary-Treasurer Bruce Cloaninger, Director of Department of Fertilizer Inspection and Analysis, Clemson College, Clemson, S. C.

Gaither T. Newman (center), director of Industrial Relations, Insurance, and Safety, Smith-Douglass Co., Inc., was elected general chairman of Fertilizer Section, National Safety Council at their annual meeting. John S. Mark (left), manager, Fertilizer Manufacturing Division, Farm Bureau Co-operative Association, Inc., was named vice-chairman and program chairman, and C. S. Griffith, superintendent, Virginia-Carolina Chemical Corp., (Cincinnati) was elected secretary.

DEALER IS TOPS SFC LEARNS

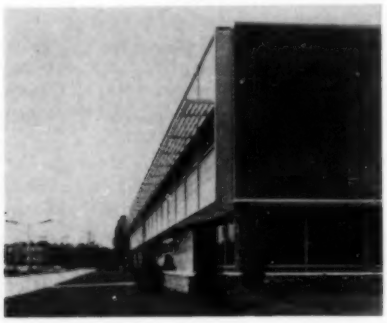
THE importance of the fertilizer dealer was stressed at the sixth annual Southeastern Fertilizer Conference at Atlanta, Ga. In a slide talk, Dr. Ralph Wehunt, of TVA, told members that the fertilizer dealer is the one the farmer relies on for fertilizer know-how. He is the last one the farmer talks with before buying fertilizer.

Dr. Wehunt stressed the key factors in increasing fertilizer sales — knowledge of soils and such services as soil testing and fertilizer demonstrations. He pointed out that a TVA survey conducted in Iowa revealed that dealers who offered soil sampling and demonstration services made $100 to every $46 made by dealers offering credit and discounts.

Fertility programs in Montgomery County, Georgia and Obion County, Tennessee were discussed and the results related to the conference. To encourage Obion County farmers to use soil tests, the county agent sponsored a soil test jingle contest. More than 190 entries were submitted. The winning jingle was "Sowing more—reaping less —better switch to soil test." Success of the Obion County drive was reflected in a total of 1500 soil tests already this year, compared to 669 in 1960.

Other principal speakers were E. T. York, Jr., Federal Extension Service Administrator; Dr. U. S. Jones, head of agronomy, Clemson (S. C.) College, and Raoul Allstetter, vice-president, NPFI.

October 6 was the day they clipped the red ribbon at **Diamond Alkali Company's** new T. R. Evans Research



Center in Painesville, Ohio. More than 600 people attended the formal dedication and heard the keynote address by Dr. T. Keith Glennan, president, Case Institute of Technology. Raymond F. Evans, chairman and president, reaffirmed Diamond's interest in research and noted that the work being done at the research center may very well have a profound effect on Diamond Alkali five, 10, or 15 years hence.

Diamond Alkali was formed in 1910 and its first products were soda ash and caustic soda. Today Diamond produces 14 major products or product groups. Agricultural chemicals are an important part of Diamond Alkali and include DDT, BHC, 2,4-D, 2,4,5,-T, Dacthal, Lindane, Ovex, hexachlorobenzene, and grain fumigants. Dr. Gordon Utter heads their agricultural research division.

Net income took a slight dip over the first nine months of 1961, according to a recent report by **Texas Gulf Sulphur Co.** Net income was $8,979,050, compared to $9,557,668 for the same period of 1960. Decline in net income was attributed to reduced sales abroad and a weakened autumn demand from the fertilizer industry.

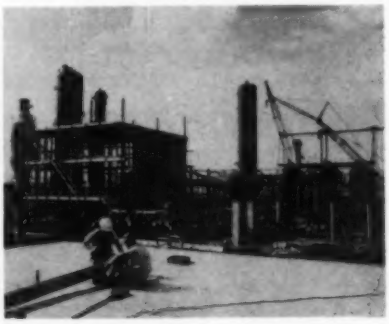
Chimica Sarda S. p. A. is the name of the newly formed company jointly-owned by Pittsburgh Plate Glass International S. A., and Rumianca, S. p. A. The new company will be located in Sardinia, Italy and will manufacture glycerine, trichlorethylene, perchlorethylene, and ethylene dichloride by processes developed by PPG's chemical division.

Construction is underway at Edison, Calif., on **A F C, Inc.'s** expansion of facilities. The first unit, a 30 ton-per-hour acidulation and granulation plant began production of single and triple superphosphate on December 1. A 75 ton-per-day ammonium sulfate and diammonium phosphate unit is scheduled to go into production at the beginning of 1962.

$55,800,146—that's the amount of **Smith-Douglass Co.'s** net sales for the year ending July 31, 1961. Net profit was $2,736,392.

Terre Haute, Ind., will probably be the site of a new $20 million nitrogen plant to be owned by a new corporation composed of Landmark Farm Bureau Co-operative; Illinois Farm Supply Co.; Indiana Farm Bureau Co-operative; and Central Farmers Fertilizer Co. The plant will produce anhydrous ammonia, ammonium nitrate, nitrogen solutions, and urea products.

On target—that's the word from **Armour Agricultural Chemical Co.** about their multimillion dollar nitrogen fertilizer complex now under construction at Cherokee, Ala. The ammonia plant pictured here, and the urea



plant are expected to be completed by mid-March. Facilities for the production of ammonium nitrate, nitrogen solutions and nitric acid are scheduled for completion in April. The complex will include the largest single train ammonia plant in the world. Construction got underway in April.

Calendar

December 4. Minnesota Soils and Fertilizer Short Course, Koffee Hall, University of Minnesota, St. Paul.

December 4-6. Chemical Specialties Manufacturing Association, 48th annual meeting, Hotel Roosevelt, New York City.

December 5-7. National Aviation Trades Association, annual meeting, Washington, D. C.

December 6-7. Alabama Soil Fertility Society annual meeting, Whitley Hotel, Montgomery, Ala.

December 7-8. Michigan Fertilizer and Lime Conference, Kellogg Center, Michigan State University, East Lansing.

December 7-8. Missouri Fertilizer Conference, Student Union, University of Missouri, Columbia.

December 11-12. Northern Seedsmen's Association, annual winter meeting, Radisson Hotel, Minneapolis, Minn.

December 11-14. Weed Society of America, Jefferson Hotel, St. Louis, Mo.

December 13-15. American Society of Agricultural Engineers, winter meeting, The Palmer House, Chicago, Ill.

December 14-15. Ohio Fertilizer Conference, Student Union, Ohio State University, Columbus.

December 18-19. Kansas Fertilizer Conference, Umberger Hall, Kansas State University, Manhattan.

December 19. North Dakota Fertilizer Conference, Student Union, North Dakota State College, Fargo.

January 3-5. Northeastern Weed Control Conference, 16th annual meeting, Hotel New Yorker, New York, N.Y.

January 5-6. Western Colorado Horticultural Society, annual meeting, Civic Auditorium, Grand Junction, Colo.

January 9. Iowa Fertilizer Dealers Short Course, Student Union, Iowa State University, Ames.

January 10. Fertilizer Industry Representatives Conference, Student Union, Iowa State University, Ames.

January 16-17. Illinois Fertilizer Conference, University of Illinois, Urbana.

January 16-17. Nebraska Fertilizer Conference, University of Nebraska, Lincoln.

January 16-17. Fertilizer, Machinery & Chemical Exposition, Pershing Municipal Auditorium, Lincoln, Neb.

January 17-19. Southern Weed Conference, Hotel Patten, Chattanooga, Tenn.

January 22-25. National Plant Engineering & Maintenance Show, Convention Hall, Philadelphia, Pa.

January 23-24. South Dakota Fertilizer Conference, South Dakota State College, Brookings.

January 25-27. Agricultural Aircraft Association, 12th annual convention, Hotel El Mirado, Palm Springs, Calif.

February 6-7. Vertebrate Pest Control Conference, Senator Hotel, Sacramento, California.

February 12-13. Short Course on Fertilizer Technology, Purdue University, West Lafayette, Indiana.

February 13-14. Aquatic Weed Control Society, third annual meeting, LaSalle Hotel, Chicago, Ill.

February 15-16. Midwest Agronomists and Fertilizer Industry Representatives, annual joint meeting, Edgewater Beach Hotel, Chicago, Ill.

March 13-14. Symposium on Packaging of Chemical Products, Chase-Park Plaza Hotel, St. Louis, Mo.

April 11-12. 27th annual Chemurgic Conference, Sheraton-Atlantic Hotel, New York City.

Commercial Solvents Corp. made a happy report recently. Sales for the first nine months of 1961 are up 8%. Nine month net earnings for 1961 were $3,934,521, compared with $3,637,277 in the same period in 1960.

A Farm Consumer Panel has been established by Theodore Riedeburg Associates, New York. The new panel classifies farmers right down to income, type of farm, amount of acreage, types of crops and products used. The panel will be used in consulting work and will also be available to major corporations for use in conjunction with their own marketing departments.

Thompson - Hayward Chemical Co. began operations last month at this new multimillion dollar 2,4-D and

2,4,5-T acid manufacturing plant located at their new Turner Industrial district site in Kansas City, Kan. Thompson-Hayward recently became a part of the North American Philips operation and is affiliated with Philips-Roxane, Inc. T-H will be developing and marketing in the U. S. pesticides which originate from the research of N. V. Philips-Duphar of Holland.

Chemicals

Three chemical retardants — **Amo-1618, phosphon,** and **CCC** which were used in greenhouse tests by USDA scientists showed some interesting results. It was found that they also prevented salt damage. In one test, soybeans which had been treated with chemical retardants and grown in soil made salty by excess fertilizer, grew to maturity and produced some viable seed. Untreated plants wilted within 24 hours, and died within three weeks. Perhaps in the future, areas now unusable because of salty soil may become fertile. These early tests may point the way.

Monsanto Chemical Company's Agricultural Chemicals Division recently announced that two new herbicides— **Avadex BW** and **Rogue** — will be available to growers in time for the 1962 planting season. Avadex BW is designed specifically for maximum wild oat control in wheat and barley. Rougue controls grass and certain broadleaf weeds in rice fields.

Thiodan has been approved by USDA for use on tomatoes. Niagara Chemical Division, FMC Corp., reports that its use for control of hornworm brings the number of tomato pests now controlled by this chemical to seven.

People

Freeman

Witco Chemical Co., Inc. New member of the board of directors is Stanley M. Freeman. He is president of Greentree Electronics Corp., a California manufacturer of magnetic tapes for consumer and industrial markets.

Pittsburgh Plate Glass Co.'s chemical division has three new district sales managers. H. Richard Sherburne will head a newly established sales office at Los Angeles, Calif. Arthur W. Wilson is district manager of another new sales office at Portland, Ore. Donald A. Huff will be in charge of PPG's sales office at San Francisco, Calif., succeeding O. W. Andrews who has been named director of marketing services with headquarters in Pittsburgh, Pa.

Rainey

Armour Agricultural Chemical Co. has appointed J. L. Rainey manager of the Ris-Van Division. Rainey joined Ris-Van at its Belmond, Iowa headquarters in December, 1960, as sales manager. He was previously with Nitrogen Division of Allied Chemical Corp.

Monsanto Chemical Co. has named Robert E. Baynard, Jr., product supervisor for technical pesticides for the company's Agricultural Chemicals Division. He was formerly field sales representative in the Chicago district.

California Chemical Co. has made a major reorganization in the marketing department of its Ortho Division. F. J. Juchter has been appointed manager of Calchem's Supply and Distribution Department, a new position within the company. He was formerly the Ortho Division vice-president in charge of manufacturing. M. E. Wierenga will head the newly-created national marketing staff. His staff includes C. E. Cody, national sales manager for agriculture; E. L. Stripling, Jr., national products manager for pesticides; W. E. Jaqua, national products manager for fertilizers; and C. E. Jones, Jr., national sales

manager for garden and home products; C. M. Crutchfield, manager of product development and market research; G. H. Johnson, national operations manager; Dr. M. H. McVickar, national manager of agronomy, and C. H. Lupsha, assistant national products manager, pesticides. V. A. Bryant has been named special assistant to Wierenga.


Farrar

Olin Mathieson Chemical Corp. has a new market development representative for pesticides. He is Dr. Luther L. Farrar. His duties will include pesticide sales development and technical service work as well as direct sales in the southeast. Dr. Farrar will make his headquarters in Athens, Ga.


Walker

Hooker Chemical Corp.'s Eastern Chemical Division has named James S. Walker as manager — agricultural chemicals of its new marketing group responsible for the division's marketing and development activities. Joseph E. Thornberg succeeds Walker as manager of sales administration.

Monsanto Chemical Co. John R. Eck has been elected vice-president and appointed general manager of Monsanto's Plastics Division. He succeeds Robert K. Mueller who has been elected a member of the board of directors and a member of the company's Executive Committee. H. Harold Bible has been named general manager of Monsanto's new Hydrocarbons Division. F. E. Reese will be his assistant.


Wrich

Chemagro Corp. has appointed Mitchell J. Wrich as research field representative. He will serve the company's north central region from headquarters in Sioux Falls, S. D. Wrich was formerly with USDA in Kerrville, Texas.


Johnson

Niagara Chemical Division, FMC Corp., has appointed Dr. Oscar Johnson as marketing director. He will have responsibility for the overall direction of technical chemical sales, market research, advertising and promotion, purchasing, and Niagara's sales development program.


Lahey


Spencer


Boher


Goff


Ashton

Bemis Bro. Bag Co. has assigned Lyman H. Goff, Jr. to its Allied Operations staff. He will direct paper specialty and polyethylene bag activities. R. W. Lahey, Jr., has been named to succeed Goff as manager of the Norfolk, Va., bag plant and sales division. R. J. Boher has been appointed sales manager of the Norfolk sales division. Bemis has also realigned its geographical central operations area into central and northern operations. T. H. Ashton, formerly director of central operations, will head the northern operations. S. M. Spencer, formerly manager of the St. Louis plant and sales division, will direct central operations.

E. I. duPont de Nemours and Company has named Wallace E. Gordon as general manager of the Industrial and Biochemicals Department, succeeding Clark W. Davis, who has retired after more than 44 years with Du Pont. Gordon was formerly assistant general manager.


Riley

Chemagro Corp.'s new research field representative is Dr. George B. Riley. He has been assigned to the central Atlantic states with headquarters in Haddonfield, N. J. Before joining Chemagro, Dr. Riley served as entomological advisor to International Co-operation Administration in Iran and Turkey.


Chandler

Best Fertilizers Co. has a new agronomist. He is K. Chandler, former district agronomist for the National Plant Food Institute. He will work with professional and college educational and research personnel to raise farm income through advancement of soil fertility resources. He will also work closely with Best fertilizer dealers and their farmer customers.

California Chemical Co.'s Ortho Division has appointed Eldon S. Ratcliffe as field agronomist for the Illinois, Missouri, and Kansas areas. He will make his headquarters at St. Louis, Mo. John A. Sauer, Jr., has joined the Ortho Division as sales representative for the Ohio area. New district agronomist for the Des Moines, Iowa area is Thomas H. Schultz.

Stauffer Chemical Co. William H. Jordan has joined Stauffer as field representative, agricultural chemicals. He will cover the Imperial Valley, Calif., territory. Jordan has had 10 years experience in pest control with USDA and with several chemical firms.


Johnson

Dow Chemical Co. has named Dr. Julius E. Johnson manager of the Agricultural Chemicals Department. He was formerly director of Agricultural Chemicals Research. Johnson's new duties include overall direction of research, development, and production planning activities. He succeeds J. W. Britton, who has headed Dow's agricultural operations since 1949. Britton will serve on special assignment in Executive Research for the next year.


Cunningham

Texas Gulf Sulphur Co. Newton Cunningham is now assistant sales manager. For the past year, he has served Texas Gulf as assistant manager of technical sales service. Prior to that, he was assistant manager of the company's Houston traffic department.


Snyder

Link-Belt Co. has named G. Edward Snyder district manager at Indianapolis. He succeeds Arthur K. Schifflin, who has retired after 37 years of service. Snyder, formerly sales engineer at the Link-Belt Cleveland office, joined the company in 1949.

West Virginia Pulp and Paper Co.'s Multiwall Bag Division has added two men to its sales force in the West and Midwest. Robert J. Gigler has been

named special account executive for the western district, working out of the company's Torrence, Calif., plant. David D. McClintock has been appointed sales representative for the Chicago District.

Tongate

Simonsen Manufacturing Co. has appointed Ray Tongate as sales manager. Tongate has had nearly 20 years of sales experience in the north central states area. He was formerly associated with Carey Salt Co., as agricultural products manager and also served as sales engineer of their Omaha division.

St. Regis Paper Co. has reorganized the marketing staff of its Bag Division. John T. Walton has been appointed division sales director. Alfred A. Roetzer has been named to succeed Walton as manager of marketing services. John H. Dively has been appointed agricultural products packaging manager. Carl W. Olson has been named chemical products packaging manager.

Wood Ridge Chemical Corp. New sales manager of the specialties division is Fred C. Meendsen. Before joining Wood Ridge, Meendsen was associated with Velsicol Chemical Corp.

NIAGARA MOVES

(Continued from page 18)

cals, including their product Elgetol and various dinitro herbicides.

Niagara recently announced its newest entry into the field of herbicides. It is Solan, formulated as an emulsifiable concentrate. Stuart Bear, manager of Niagara Division, was a farm boy himself and has a keen appreciation of weed problems. Bear believes Solan will bring about sweeping changes in methods of planting and harvesting tomatoes.

WILL SOLAN CAPTURE MARKET?

Solan (named after Solanaceae, the botanical family to which the tomato belongs) is applied after the weeds emerge and makes possible successful field seeding of tomatoes and more successful mechanical harvesting. It is also ideally suited for use on transplants. Label claims for its use have been accepted by USDA, and in 1961, some 100 commercial tomato growers tried it out.

In 1962, Solan will be available on a restricted basis to top flight growers who know how to use herbicides. Like all herbicides, Solan will not stand careless application. Application must be made before grasses exceed 1 inch in height or before broadleaf weeds reach a height of 2 inches. It cannot be applied within two weeks of transpanting nor within 30 days of harvest.

To Niagara, Solan is their bid to capture a herbicide market for tomatoes which could amount to some 450,000 acres at a recommended rate of 4 pounds per acre.

Niagara turns out a full line of insecticides, fungicides, and herbicides. In addition to Solan, Niagara has developed two new insecticide-miticides, Ethion and Phostex, and a new herbicide for cotton, Dicryl. Niagara also has the U.S. rights for two European products—Tedion, discovered by N. J. Philips-Duphar; and Thiodan, a Farbewerke Hoeschst product.

Niagara's full commitment to the systematic discovery of new pesticide chemicals signifies that this company is well aware of the fact that the status quo cannot exist for long in agriculture today. What pesticides are not outdated by insect resistance may soon lose popularity because of new crop technology, or new areas of production, or new, more efficient competitive products. Niagara now joins such companies as Shell, American Cyanamid, Stauffer, Union Carbide, Monsanto, Dow and Olin Mathieson in the race for pesticides. ☆

ORTHO TAKES AIM

(Continued from page 16)

One irrigated pasture which received a combination of 20-20-0 and 20-10-0 produced 916 pounds of beef equivalent per acre. The gross return from beef amounted to $183.20 per acre and the net profit more than $100 per acre.

The high yield plots are the center of talk at every farm gathering in the

Frank Brunnell (left) and fieldman Harold Maus inspect sugar beets on high yield plot. Brunnell applied 180 pounds N; 132 pounds P_2O_5; 22 pounds K_2O; plus ammonium nitrate per acre.

Bitter Root area. The history of the program is now being written and should prove interesting reading. One thing is certain—23 growers in the Bitter Root Valley of Montana, working hand-in-hand with the county extension service and a commercial company interested in their welfare, are pioneering new frontiers in agriculture.

Pioneers always make more progress than those content with the status quo. ☆

INTERNATIONAL MARKET

(Continued from page 38)

cannot be relied on to adeq uately perform this function. German personnel are flexible and are moved to other countries whenever the situation warrents.

Securing their own distribution: German firms are rapidly buying into established outlets in Central America, Australia, South America, and other areas. This assures them of controlled outlets for their products.

Adopting credit terms to local demands: German firms meet local credit policies and in some cases give up to 360 days credit.

Using aggressive marketing techniques: German firms know thoroughly the advantages and limitations of competitive products. They move quickly to meet competition in advertising, personnel, and price. They take full advantage of brand name marketing.

A major reason for this effective German effort is the fact that the German domestic market is not large enough by itself to support the necessary investment in production facilities, research personnel, and distribution systems to produce profitably.

DUTCH FIRMS

Many Dutch firms, such as Philips-Roxane, Inc., participate in overseas marketing of agricultural chemicals, but Shell is probably the most outstanding. In fact, Shell is the world's most important single supplier of agricultural chemicals.

The very extensive nature of Shell's world-wide distribution is the envy of any company desiring to enter the field. In nearly every country, no matter how small or primitive, Shell or an affiliate has a gas station in most villages. These stations serve in many instances as distribution points for agricultural chemicals. Management personnel are available in all countries and technical personnel are added as needed.

Shell has participated actively in WHO and FAO programs. They supply aircraft for pesticide application during locust and other major control programs. As a result, their name has become increasingly well known in the world market. In markets where formulation facilities are available they sell finished products themselves and also sell technical material to other formulators. In some countries they have allied themselves to other distributors to give added coverage.

Shell has used advertising very effectively to merchandise their products. They probably have the largest advertising budget of any agricultural chemical firm. Shell's future success will depend on their ability to continue to introduce new products either of their own or others' discovery.

ENGLISH FIRMS

English firms, such as Imperial Chemical Industries, Murphy, Fisons, and Burroughs Welcome are also a factor in international agricultural chemical sales. The strong political and economic ties of the commonwealth countries have resulted in English manufactured chemicals receiving favored tariff rates. Benzene hexachloride has been widely used in the world market and ICI has been a principal producer.

ICI's research program is well known and they have maintained experimental farms in both the northern and southern hemispheres. ICI, like Shell, has taken advantage of its world-wide interests in chemicals and plastics as a base on which to build its agricultural chemical distribution.

English firms are now faced with lessened influence in the Commonwealth and loss of preferential tariffs. Their future, too, will depend on their ability to discover new pesticides.

Only in the western hemisphere have domestic firms (DuPont, Dow, Diamond Alkali, Monsanto, Olin, Hercules) been considered as serious factors in the export market for agricultural chemicals. There are few outstanding exceptions such as Hercules' participation in the Egyptian market. U. S. producers of agricultural chemicals have never been considered as really effective in the world market.

One reason for this might be the sales approach used. While the Dutch, German, and English firms were developing effective distribution systems and supplying technical help abroad, U.S. agricultural chemical producers seem to have used a sales approach overseas which disappeared from domestic markets in the 1920's. The U.S. companies were wont to send a traveling salesman through each area once or twice a year to book orders. The salesman understood little of the problems of the areas and based his approach on providing a better price, rather than giving technical aid.

In many areas the choice of distributors, particularly exclusive distributors, by U.S. companies seems to have been less than perfect. The chosen distributor might have a fancy letterhead, a good sales talk, or he might be a customer for other lines handled by the U.S. company. With such a distributor the traveling salesman could make one call in each country and cover the world relatively easily and quickly. Once a firm got the exclusive, it might or might not (usually not) put some

A BUG'S LAST LOOK AT A GRUMMAN AG-CAT

From the bug's view, Ag-Cat is for the birds. And any ag operator who's logged an hour in one can tell you why. Highly maneuverable. Big hopper capacity. A bear for work. Knows its "three Rs" backwards and forwards too: Ruggedness, Reliability, Reputation. And lives by them. Check your nearest distributor for Ag-Cat's money-making specifications. Also ask about the easy finance plan—through your own bank—that puts you in the air for a modest down payment.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION · BETHPAGE · LONG ISLAND · NEW YORK

Aero Spray & Dust Service, Accord, N.Y. • Blue Mountain Aviation & Dusting Corp., Route 4, Walla Walla, Washington • Sun Valley Dusting Co., Box 167, San Benito, Texas • Lyon Flying Service, Box 726, Welsh, La. • Magnolia Aviation Co., P.O. Box 683, Laurel, Mississippi • Wilson Air Service Inc., Bridgeton, N. J. Mid-Continent Aerial Sprayers, Inc., Box 307, Hayti, Missouri.

effort into sales development. Such firms could not compete with the aggressive sales approach of Shell or Bayer.

A third reason for the slowness of U. S. firms in developing overseas markets seems to have been the result of myopia. Domestic U.S. firms were so intent on developing domestic markets that they overlooked the much larger markets existing abroad. Whereas Dutch, English, and German firms had to develop export markets to survive, the U.S. producers of agricultural chemicals had a large market on their doorsteps. They were not pushed into export sales as were European firms. What export business U.S. firms did get usually developed by accident rather than purpose.

In the future, those U.S. firms that are ready to bear the cost of sound market development and research in the field of agricultural chemicals will be able to build larger markets overseas. They must, however, build on a sounder basis than they have done in the past. The traveling salesman approach will become continually of less value.

Nor can a supplier depend on some other firm to develop his markets for him. Each market must have continuous technical support, a sales development program, and a distribution system adequate to supply the farmers in whatever country may be involved.

A third class of supplier in international trade can be found in the export-import agents. Although not of major importance volume-wise, these agents deserve our attention because of the potential threat they pose to overseas sales.

To develop a market overseas properly a local distributor must make a considerable outlay of capital. In order to regain this capital, a minimum mark-up of an imported product is necessary. The amount of such mark-up, of course, varies by market and by the extent of the sales development effort. The import-export agents, operating on a small commission and supplying no sales development, often place a product on the market at a price lower than the bona fide distributor can afford to meet. Under such a situation, the distributor loses all interest in the product and the market may eventually be lost to a more fully integrated competitor or to the export-import agent.

In addition, since the export-import agent cannot afford a development program, he tends to make his percentage and turn to the next deal. He cares little about what happens to the product once the transaction is made.

The export-import operator sometimes does have an advantage since he is often an expert in currency manipulation and will make transactions at no profit on the product—the profit being made by maneuvering currency. Such operations are completely demoralizing in markets where stable prices are needed.

Export-import agents will continue to be a problem but can also be helpful. They can be used to supply small amounts of materials to markets where no distribution system is involved. They can often ferret out orders which would be otherwise lost. They can be useful to us, but if care is not taken, they can quickly demoralize the export market for us.

As the political scenes change, so do our markets. We must keep aware of these trends as they are developing. Learning their business methods presents its difficulties. Each market has its own business characteristics.

We cannot hope to impose our methods on their societies. Insofar as possible, we must try to adapt our business methods to theirs. What is considered entirely normal in one market may be considered illegal in another. We must learn to work in each market either by adapting ourselves or by working through firms and individuals who know the eccentricities of the local market. ☆

BULK BLENDING

(Continued from page 34)

Smith said that after studies were made at the University of Missouri's experiment station, the following conclusions were reached:

(1) Materials used in bulk blending should have similar size, shape and density. By giving attention to the proper materials, blends can be prepared that will meet the requirements of fertilizer laws.

(2) Segregation of blended materials in trucks can be minimized by not permitting to "cone" and by keeping the "roll" to a minimum.

(3) The best distribution pattern has been obtained when materials are in the sieve size range of −8 to +20. The data obtained suggest a range in particle size is more desirable than when most of the materials have a narrow range in diameter.

(4) Little segregation occurred when materials of acceptable sizes were blended and trucked for 30 miles.

(5) When the materials are dropped in the proper position on the fans as even a distribution has been obtained with one as with two fans. In many cases there is a tendency for 1-fan trucks to throw more materials to one side.

(6) In work with a number of trucks the best spreading patterns have been obtained with fan speeds of 550 to 650 rpm. ☆

HANDLING OF FERTILIZER

(Continued from page 37)

storage tanks, he continued. Fertilizer and salt are frequently discharged into grade level or below grade level open bins.

John Fischer of Sprout-Waldron Company said that at the present time most materials handling systems are mechanical. However, he said that companies are finding that they have less trouble with pneumatic systems. He told an interesting case history of a farm cooperative which is discharging fertilizer materials at the rate of 40,000 pounds per hour in a system originally designed for 25,000 pounds per hour. There are five direction changes in the system, which employs a 30 horsepower engine.

"Where can you get a mechanical system that will do this?" he asked.

"Pipe can be run anywhere," he said. When it wears out it doesn't cost a lot to replace it."

The system he described employed a pit beneath the rail with a hopper located over a rotary valve.

"Like a revolving door," he added.

Materials are moved 157 feet in the five changes of direction. There is a vertical distance of 37 feet to the bins.

Breakage and abrasion are the two major problems with a pneumatic system, Fischer said. Particle size is important.

Also, the ability to flow readily is critical. Breakage is possible when the material enters an elbow. Velocity should be equal to or greater than the settling capacity of the material, he added.

There are two ways of attacking the problem, he said. One way is to slow down the system. This can be done by using less air. Also, more material can be put in the line.

The second method is to "beef up" the system, such as using larger pipe, etc.

WEIGHING POPULAR SUBJECT

Arthur Sanders, executive secretary of the Scale Manufacturers Association, Inc., indicated that weighing in the fertilizer industry calls for some improvement.

"Taking scales for granted," he said, "might mean the difference between profit and loss—often amounting to a large amount of money in your business." (See "Your Scale Weights and Your Profits," May 1961 issue FARM CHEMICALS).

Sanders said that good, modern scales and maintenance are available to get the job done. "If it's worth the effort of weighing, it's worth weighing right."

Next month —FARM CHEMICALS will continue its report of the 1961 Fertilizer Industry Round Table in this section.

READER SERVICE

FREE INFORMATION to help you solve fertilizer, pesticide problems

Chemicals

NEW BUFFER COMPOUNDS

Coleman Instruments, Inc., has just introduced a new product series—certified pH buffer powders packed in hermetically sealed packets for preparing standard solutions for pH measurements. Chemists can make just the amount of solution needed by adding water. The formulation in each packet is certified to produce a buffer solution within 0.01 of its stated value. There are four pH values available: 2.0, 4.0, 7.0, and 10.0. For more information,

CIRCLE 228 ON SERVICE CARD

PROPELLANT

A custom blend propellant for use with insecticides has been developed by Union Carbide Chemicals Company. Called Propellant A, it is non-flammable. For further details on this new propellant,

CIRCLE 229 ON SERVICE CARD

THREE SOLVENTS

Pesticide manufacturers will want to learn more about three new panasol solvents recently introduced by Amoco Chemicals Corp. Panasol RX-4 is an xylene type with high aromatic content, high K-B value, narrow boiling range, and low phytotoxicity. Panasol AN-2K is a heavy aromatic naphtha with high solvency, high aromatic content, uniform high quality, and high flash. Panasol AN-2 is a high solvency naphtha with excellent low temperature stability. For more information about how you can use these three solvents in your manufacturing process,

CIRCLE 230 ON SERVICE CARD

Process Equipment

NEW GATE VALVE

A new eight-page bulletin describing DeZurik Corporation's new rubber seated bonnetless knife gate valve has just been released. It lists dimensions, actuators, and range of use. The valve is bonnetless; the gate—not the stem—moves through the packing. The design eliminates the bonnet cavity where solids can pack and interfere with operation of the valve. It is designed for use on lines carrying dry solids and abrasive slurries. To get your copy, simply

CIRCLE 231 ON SERVICE CARD

EQUIPMENT INFORMATION

It's a Fact is the name of B-I-F Industries newest bulletin covering their complete line of equipment for dry and liquid feeding, continuous weighing, and flow metering. Included in the booklet are descriptions of B-I-F's belt gravimetric feeder, belt (stream) weigher, butterfly valves, liquid blenders, and differential and displacement meters. For more information about this dependable, accurate equipment,

CIRCLE 232 ON SERVICE CARD

MIX IT YOURSELF

Continental Sales Company, manufacturers of Blend-O-Mixers, has complete information about the installation and use of their fertilizer blending factories which are one man operated, push button controlled, and completely automatic. The Blend-O-Mixer delivers 1 ton of fertilizer every three minutes and can blend over 7000 possible formulas. The ratio of ingredients is controlled by an electric timer. It can be installed in one week and is designed to save money, time, and shipping and handling costs. For complete details

CIRCLE 233 ON SERVICE CARD

TRANSFERMATIC

From Ball & Jewell, Inc., comes news of a unit which has been designed for transferring powders and granular materials directly from drum to hopper, or from floor level to any other location. It is a self-contained unit which is easily clamped on. Operating on plant-supplied compressed air at pressures up to 150 psi, the B & J Transfermatic can move from 75 to 800 pounds of material per hour. It comes equipped with pressure gauge, pressure regulator, and air filter. You can find out more about the Transfermatic by

CIRCLING 234 ON SERVICE CARD

AS YOU LIKE IT

Whether your problem is one of heating or cooling, Platecoil Division of Tranter Manufacturing, Inc., has the answer. The Tranter Platecoil equipment comes in standard sizes, or it can be formed to your specifications. For more detailed information on how Platecoil can be installed to your specific requirements, just

CIRCLE 235 ON SERVICE CARD

Materials Handling

PUMPS

Need pumps? Marine Products Co. has complete information on their line of all-iron pumps for liquid fertilizer and all-aluminum pumps for nitrogen solutions. They feature stainless steel studs, nuts, impeller sleeve, and shaft seal. Pumps are available from 100 to 280 gpm. For complete details,

CIRCLE 236 ON SERVICE CARD

PORTABLE CRANES

Need a portable crane with a turnabout boom? Hawkeye Industries has a new, illustrated catalog sheet on their Safe-T-Lift crane with a turnabout boom. It includes complete specifications of these ½-ton and 1-ton portable, mechanical cranes. For your copy, just

CIRCLE 237 ON SERVICE CARD

SPRAY NOZZLES

Monarch Mfg. Works, Inc., has a new catalog on stoneware chamber sprays used by nearly all chamber spray sulfuric acid plants. The Fig. 645 nozzle is used for scrubbing acid phosphate gases. It is made for "full" or "hollow" cone in brass and "Everdur." A copy will be sent to you if you

CIRCLE 238 ON SERVICE CARD

Packaging

VALVE INSERT

Union Bag-Camp Paper Corporation has developed a unique reinforced polyethylene valve insert for stepped-end pasted valve bags. It is designed to lie flat against the upper end of the bag and is constructed of seamless polyethylene tubing with a strip of 60-pound gummed tape reinforcing the top side of the tube. Further information can be obtained by

CIRCLING 239 ON SERVICE CARD

Application Equipment

ABOUT PUMPS

From Deming Division of Crane Company comes word of a new bulletin describing in detail their complete line of metering pumps especially adapted for agricultural use. Besides giving full details on each type of pump, charts are included which show gpm at various pressures, as well as power requirements, and suggested uses. For complete details

CIRCLE 240 ON SERVICE CARD

ACCURATE SPREADING

Custom applicators will want to learn about Simonsen Manufacturing Co.'s fertilizer spreading equipment. Model N-48 features unique no-spring, individual wheel suspension —all wheels carry equal weight at all times. It is available in 2-ton and 4-ton capacities. Model P710 has a 7-ton capacity. It is available in three spreading widths and can accurately spread 75 pounds or more per acre. Both feature stainless steel apron, and all-weather wheel drive. To learn how you can use these spreaders in your custom application,

CIRCLE 241 ON SERVICE CARD

PNEUMATIC TRAILERS

A New and Better Way to Move Dry Flowables is the title of Butler Manufacturing Company's newest brochure. It features the Butler pneumatic trailer for delivering dry flowables. For complete information and a copy of this 12-page brochure,

CIRCLE 242 ON SERVICE CARD

See page 48 for information on these Reader Service Numbers:

243—Micron Grinding
244—Quicker and Better
245—No Corrosion
246—Too Good

To use Reader Service Cards on pages 10 and 36: Circle number of literature you want. Print your name, position, company and address. Clip and mail.

NEW & NOTEWORTHY

MICRON GRINDING

One of the big chemical companies recently told me how they got into the profitable 95% 324 mesh market. The process was easily handled with a new mill that did the job in one step.

Chemical and fertilizer companies

Vertical air-swept impact mill with integral air classifier

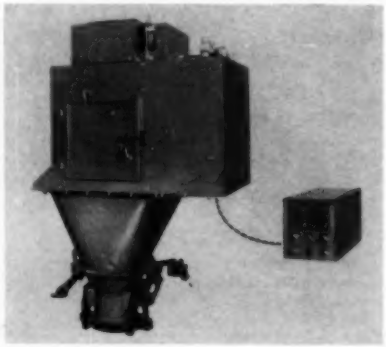
who are using the new mill for fine grinding are experiencing lower production costs and better quality.

The new mill is made in three sizes, one of which is ideal for your operations. The manufacturer will test run the mill for you. You can get the details by writing George Towle, Sturtevant Mill Company, 161 Clayton St., Boston 22, Mass., or simply

CIRCLE 243 ON SERVICE CARD

QUICKER AND BETTER

I think all of us have the problem of increasing production in bagging. I saw a new scale at work which answers some of the problems. The scale is extremely accurate and the beam moves



toward balance in perfect dynamic control.

A slide, operated by a handwheel with graduated scale, controls material flow by varying the inlet opening. For gravity feed, an electrically- controlled pneumatic valve opens and closes a sealed, radial gate.

The new scale has a wide range of capacities with standard sizes from 5 pounds to 100 pounds. Duplex units provide approximately double these outputs.

The new SPEEDAC is capable of fast, accurate weighing of almost all materials which are packaged in open-mouth bags or textile bags. The new unit can improve your production volume and for more details, I suggest you write Richardson Scale Company, Clifton, N.J., or

CIRCLE 244 ON SERVICE CARD

NO CORROSION

If you are handling chemical or fertilizer liquids, you know the corrosion problem is critical. Last week, I visited a solution manufacturer who had solved the corrosion problem by equipping his plant with poxyglas tanks.

The new tanks are performing beautifully. They are low in cost, and be-

cause poxyglas has more than twice the strength-to-weight ratio of the highest quality steel, maintenance charges are almost nil. What's more, they are available in all sizes.

FARM CHEMICALS readers can get full information about poxyglas by writing Poxyglas, BS&B, Industrial Air Park, Ardmore, Okla., or just

CIRCLE 245 ON SERVICE CARD

TOO GOOD

A big distributor recently told me that Dacthal was *too good* for the control of crab grass. He said this pre-emergence herbicide was so effective it kept him from selling his post-emergence herbicides.

Here is a product you should know about for 1962. Why not write Jim King, Diamond Alkali Company, 300 Union Commerce Bldg., 925 Euclid Ave., Cleveland, Ohio? He will see to it that you get all the data about this herbicide. Or just

CIRCLE 246 ON SERVICE CARD

"Don't wait for the farmer . . . "

If you belong to one of the senior organizations in this fertilizer-pesticide industry, you probably long for the "good old days" at times—when you could just *feel* the electricity in the air at your annual meetings! The *mood* of those early meetings was different, with one word spelling the big difference . . .

. . . *Enthusiasm!*

Now a lot of the companies have it "made"—or they're just "satisfied." The spirit is gone. In many cases, so are the *profits.*

But the old chestnut that "there's no profit in the fertilizer business" is about to be cracked wide open. There's an enthusiastic Johnny-come-lately in the fertilizer trade who seems bent on not only cracking the old chestnut, but *burying it for good.*

We gained that impression when we attended the National Fertilizer Solutions Association convention in Chicago recently.

This "free wheeling" entrepreneur might be something like the kind of fellow whom Neal Schenet of International Minerals & Chemical Corporation told us about at our third Farm Chemicals Marketing Seminar last month. Neal was discussing the basic problem involved in making a profit and when he reached his point of "properly identifying the profit," he said:

"Reminds me of an old classmate I ran into recently at a class reunion. This guy was a complete failure in school—flunked all the important subjects, particularly mathematics and accounting.

"Yet here he was at the reunion, in a big Cadillac, wearing a $200 suit—obviously a real success.

"Well, naturally, we were all curious about it and finally we cornered him to get his story. As he tells it, it was very simple.

" 'I made a little kitchen gadget,' he said. 'It cost me $1 to make and I sell it for $3. I figure you can never go wrong making a 3% profit.' "

What's this "liquids" fellow like? Well, he's so doggone close to the farmer and his problems that you have to wonder if he isn't one himself. With such cracker-barrel sounding names for companies as Farmers Mill & Seed Company, Golden Sunshine Fertilizer Company, Land O'Nan Warehouse, etc., you have to wonder, too, where these "execs" get all their ultra-modern selling ideas! They may keep records on the back of receipts and note pads for the present, but you get the idea that wherever they might be behind in modern accounting methods, they'll soon learn that as well as selling.

One thing for sure: They're discovering for themselves the first and foremost rule in sound marketing. They probably never read the book, but they follow the idea that "the basis of the entire business is its ability to *create and fulfill customer needs at a profit.*"

At least that's the way it seemed to FARM CHEMICALS. Here's some of the "evidence" we collected.

E. T. Stone, Goodpasture Grain & Milling, Brownfield, Texas, impressed us as the kind of guy who would "give the customer whatever he needed to make him happy." This includes tissue testing and other services.

George P. Lippincott, Dorchester Fertilizer Company, Cambridge, Md., said that their company doesn't intend to "wait for the farmer to tell them when to come in and take care of a specific job." They write out a complete program for him—like a doctor putting a man on a strict diet. Then they tell the farmer when they'll be there to do the job *right.*

"We don't want to have to look him up to get certain necessary operations, like sidedressing or weed control, done *at the time it should be done,*" he said. "It's better that the whole program is spelled out in January when we sell him."

This philosophy is one that only a well organized, dedicated company would *dare* to institute. But the company which is determined to *make a profit* in 1962 cannot any more afford to "wait for the farmer" than the farmer can afford to wait for the service the company offers.

In a coming issue this entire philosophy will be brought out in a series of two articles entitled "Make a Profit or Else." We're also proud to institute a new series of articles this month on modern accounting reports and cost accounting. Without these no company can operate successfully in the 60's.

Gordon L. Berg

EDITOR

Chief Kay-Two-Oh and the Pee-Cee-A tribe have but two products: potash and service. The Chief feels that an important part of this service is to remind customers that January 31 is the last day on which potash can be shipped at lower prices under the graduated price scale. □ "Order now. Save heap much wampum," says the Chief. □ Canny buyers know that it's good business to plan ahead and keep warehouses full of Pee-Cee-A products. The motto of good Scouts, both Boy and Indian, is: "Be prepared!"

For fast service, phone, write or telex us at:
Phone New York **LT 1-1240**
TWX New York **NY 1-5386**

POTASH COMPANY OF AMERICA

CARLSBAD, NEW MEXICO "AMERICA'S **CHIEF** SUPPLIER OF POTASH"

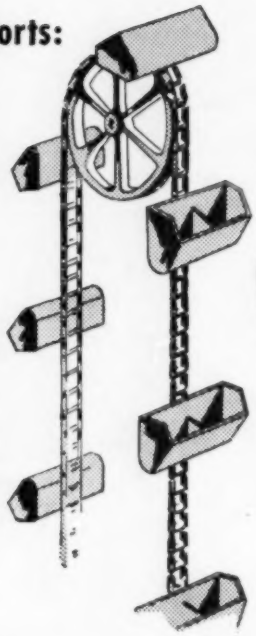
PCA SALT of the EARTH RED MURIATE

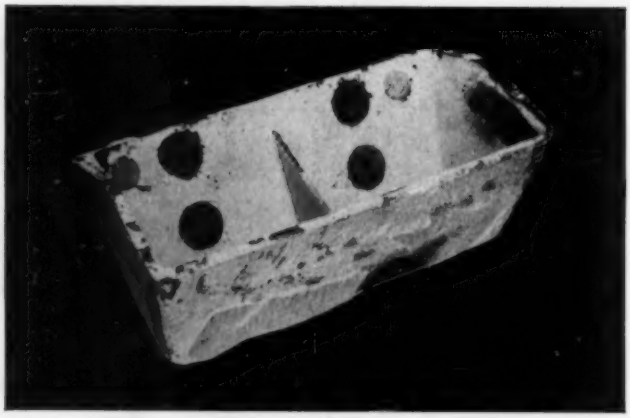
General Sales Office: 630 Fifth Avenue, New York 20
Midwestern Sales Office: First National Bank Building, Peoria, Ill.
Southern Sales Office: 1776 Peachtree Building, N.E., Atlanta, Ga.
Canadian Sales Office: 2 Carlton Street, Toronto 2, Ontario

PCA Standard 60% Muriate of Potash
PCA Coarse 60% Muriate of Potash
PCA Granular 60% Muriate of Potash
Potassium Chloride (99.9% KCL minimum)
Sulphate of Potash

The Farmers Fertilizer Co. Reports:

"Ton after ton of corrosive fertilizer *and this bucket still needs no cleaning or replacement"*





This is a Style H 13 x 6 DURA-BUKET after extended use at the Farmers Fertilizer Co., Columbus, Ohio. It's clean, crack-free and undamaged by corrosive chemicals.

"Our plastic DURA-BUKETS have been in operation for quite some time and show no signs of cracking, abrasion or build-up," says this progressive fertilizer manufacturer. Here's **why:**

100% plastic Style H DURA-BUKETS are self-cleaning. Slick walls and rounded corners prevent fertilizer build-up. DURA-BUKETS **cannot** rust or corrode. Soft, resilient plastic "rolls with the punch" to resist abrasion. DURA-BUKETS are lighter, too, for extended chain life.

In case after case, actual performance proves that where caking and corrosion are problems, the new Style H plastic DURA-BUKET is the cost-saving solution.

NOW! AT LAST!

Put an end to bucket cleaning, frequent replacement and costly downtime. Switch to new Style H plastic DURA-BUKETS and start putting more profit into your fertilizer production.

Write today about your elevator problem. Our bucket specialists will promptly supply you with help and ideas.

Dura-Buket

DIVISION

NATIONAL OATS COMPANY

EAST ST. LOUIS, ILLINOIS